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LAHONTAN
Resource Management Plan & Environmental Impact Statement

UNITED STATES DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT
arson City District
arson City, Nevada

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DRAFT RESOURCE MANAGEMENT PLAN
AND ENVIRONMENTAL IMPACT STATEMENT

for the

Lahontan Resource Area

NEVADA

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Prepared by the

DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT
Carson City District Office

Edward F. Spang
Edward F. Spang
Nevada State Director

The proposed resource management plan is a long-range plan to manage 2.4 million acres of public land within the Lahontan Resource Area. The plan has been prepared in response to Sections 202 and 603 of the Federal Land Policy and Management Act of 1976 that require the Bureau of Land Management to develop land use plans for the public lands and to study the suitability of certain lands for wilderness designation. An environmental impact statement assesses the environmental consequences of the plan.

This document is both the draft environmental impact statement for the resource management plan and the draft for a separate legislative final environmental impact statement for wilderness. A wilderness technical report containing the wilderness study area specific analyses is available upon request.

For further information contact: Thomas J. Owen, District Manager, 1050 East William St., Suite 335, Carson City, Nevada, 89701.

Date by which comments must be received: JAN 3 1984

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SUMMARY

Introduction

The Bureau of Land Management is proposing to implement a Resource Management Plan (RMP) for the Lahontan Resource Area of the Carson City District, Nevada.

The Lahontan Resource Area consists of four planning units: Pyramid, Long Valley, Fort Churchill, and Clan Alpine. Land use decisions for the Pyramid and Long Valley units were analyzed as part of the Reno Management Framework Plan and Grazing EIS. Those decisions will be incorporated into the Lahontan RMP by reference. For the purposes of this document, the Lahontan RMP area will consist of the Fort Churchill and Clan Alpine units.

The area has about 2.4 million acres of public lands. Most of these lands are located in Churchill County. Smaller portions are located in Lyon, Mineral, Nye, and Storey counties (Planning Area Map).

Five alternatives have been prepared for the RMP. A preferred resource management plan and four alternatives examine different solutions to three resource management issues.

An environmental impact statement that analyzes the environmental impacts of each alternative is an integral part of this document.

Planning Issues

The following three resource management issues are addressed in the alternatives.

1. Rangeland Management. This issue is concerned with the use of rangeland resources by livestock, wild horses, and wildlife.
2. Wilderness. This issue is concerned with the amount of acreage to be recommended suitable or nonsuitable for wilderness designation.
3. Lands. This issue is concerned with the amount of acreage to be disposed from federal ownership.

Alternatives

1. No Action. This alternative represents a continuation of present resource management and use levels.
2. Resource Protection. This alternative is oriented towards protection and enhancement of natural values with emphasis on wildlife and riparian habitats, wild horses, and wilderness.
3. Mid-Range. This alternative is designed to provide a balance between protection of natural values and production of commercial resources.
4. Commodity Production. This alternative is oriented towards production of commercial resources with emphasis on livestock and minerals.
5. Preferred Alternative. This alternative, like the Mid-Range, emphasizes a balance between resource uses. It reflects changes from the Mid-Range due to further analysis and public input in the scoping process.

Comparative summaries of the major management actions and environmental consequences of each alternative are displayed in Summary Tables 1 and 2 respectively.

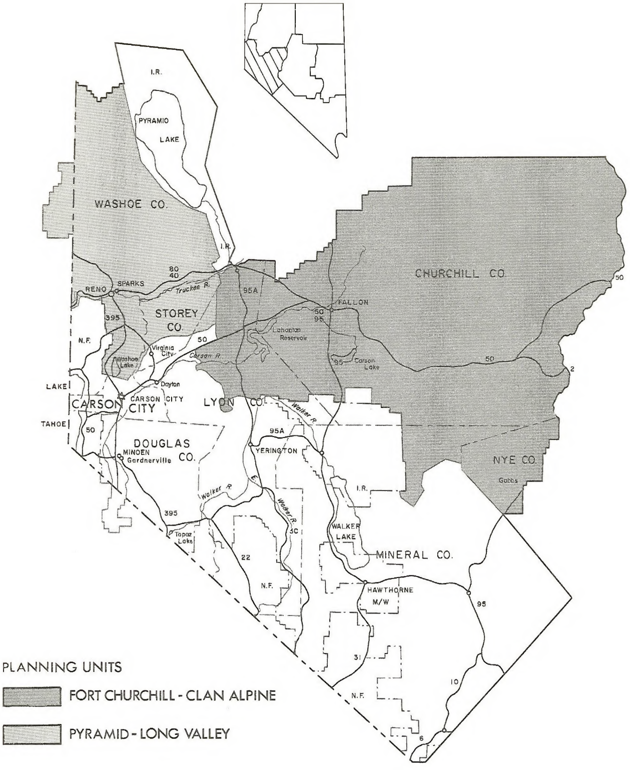
Summary Table I
LAHONTAN RMP ALTERNATIVES
SUMMARY OF SHORT TERM MANAGEMENT ACTIONS

Issues	No Action	Resource Protection	Mid-Range	Commodity Production	Preferred Alternative
1. Rangeland Management					
a. Livestock	Continue existing uses (64,239 AUMs).	Reduce livestock grazing to 46,696 AUMs (27% reduction). Defer spring grazing. Implement Allotment Management Plans on Category I allotments. Monitor and adjust use as findings indicate.	Continue grazing at the 3-year average licensed use (64,239 AUMs). Implement AMPs on Category I Allotments. Monitor and adjust use as findings indicate.	Increase livestock use to 81,840 AUMs (27% increase). Implement AMPs on Category I Allotments. Monitor and adjust use as findings indicate.	Continue grazing at the 3-year averaged licensed use (64,239 AUMs). Implement AMPs on Category I allotments. Monitor and adjust use as findings indicate.
b. Wild Horses	Manage for existing population level of 2190 head.	Allow for an increase in horse population to 2610 head (19% increase).	Manage for the existing level of 2190 head. Monitor and adjust use as findings indicate.	Reduce horse numbers to 666 head (70% decrease).	Manage for the existing level of 2190 head. Monitor and adjust use as findings indicate.
c. Wildlife	Manage for existing populations of big game (1662 AUMs).	Manage habitat for reasonable numbers of wildlife (3201 AUMs). Emphasize increased protection of 53 miles of streams.	Initially manage for existing numbers with reasonable numbers (3201 AUMs) as an objective. Offer increased protection to 30 miles of streams.	Manage for existing populations of big game. Provide protection to 17 miles of streams.	Initially manage for existing numbers with reasonable numbers (3201 AUMs) as an objective. Provide increased protection for 30 miles of streams.
2. Wilderness	Recommend no areas for wilderness designation (0%).	Recommend 432,257 acres in four areas for wilderness designation (100%).	Recommend 268,874 acres in four areas for wilderness designation (62%).	Recommend 114,478 acres in three areas for wilderness designation (26%).	Recommend 111,554 acres in two areas for wilderness designation (26%).
3. Lands	Continue existing management (case-by-case).	Dispose of 2100 acres.	Dispose of 116,500 acres.	Dispose of 116,500 acres.	Dispose of 116,500 acres.
Range Improvement Implementation Cost	N/A	$438,575	$459,075	$517,975	$459,075

SUMMARY TABLE 2
LAHONTAN RMP
COMPARATIVE REVIEW OF THE ENVIRONMENTAL CONSEQUENCES OF THE ALTERNATIVES 1/

	Alternative									
Environmental Component	No Action		Resource Protection		Mid-Range		Commodity Production		Preferred	
Soils										
Number of identified specific problem areas in which erosion problems would continue (%) 2/	7	(100%)	1	(14%)	3	(43%)	5	(71%)	3	(43%)
Vegetation										
Percent change in ecological condition 3/	-1%		+2%		+2%		+3%		+2%	
Wildlife										
Mule deer population (% change) 3/	518	(0%)	930	(+79%)	930	(+79%)	930	(+79%)	930	(+79%)
Wild Horses										
Short term population (% change) 3/	2,190	(0%)	2,610	(+19%)	2,190	(0%)	666	(-70%)	2,190	(0%)
Recreation										
Change in visitor days (%) 3/	4,465	(+11%)	9,299	(+23%)	7,525	(+18%)	5,009	(+12%)	6,008	(+15%)
Livestock Grazing										
Projected livestock use (AUMs)(%change) 3/	63,861	(-1%)	47,382	(-26%)	62,605	(-3%)	77,708	(+21%)	62,605	(-3%)
Geology, Energy, and Minerals										
Acres with energy and/or metallic mineral potential withdrawn 4/	0		-393,900		-229,300		-89,100		-72,100	
Forest Products										
Potential annual fuelwood harvest foregone (cords)(%) 5/	0		-434	(-35%)	-306	(-25%)	113	(-9%)	148	(-12%)
Wilderness										
Acres protected (%) 6/	0		432,257	(100%)	268,874	(62%)	114,478	(26%)	111,554	(26%)
Lands										
Acres disposed (%) 7/	N/A		2,100	(<1%)	116,500	(5%)	116,500	(5%)	116,500	(5%)
Social and Economic Conditions										
Change in regional income (%) 8/	$+6,500	(<1%)	$-554,000	(<1%)	$-19,000	(<1%)	$+444,000	(<1%)	$-25,000	(<1%)

1/ All impacts are long term (20 years) unless otherwise noted.
2/ Percent of identified soil erosion problem areas.
3/ Change from current situation.
4/ Acres within areas proposed for wilderness designation with moderate to high favorability for energy or metallic minerals. Percentages cannot be calculated due to lack of data.
5/ Percent of potential harvest levels. None of the alternatives would affect the current harvest level.
6/ Percent of acres within the Wilderness Study Areas.
7/ Percent of total public land acres in the RMP area.
8/ Percent of current total Churchill County income.



CARSON CITY DISTRICT

Lahontan Resource Management Planning Area

TABLE OF CONTENTS

CHAPTER PAGE

CHAPTER 1 - INTRODUCTION, ISSUES, AND CRITERIA 1-1

CHAPTER 2 - ALTERNATIVES

Introduction 2-1

No Action Alternative 2-1

Resource Protection Alternative 2-2

Mid-Range Alternative 2-6

Commodity Production Alternative 2-9

Preferred Alternative 2-11

Implementation of the RMP 2-13

Standard Operating Procedures 2-16

CHAPTER 3 - AFFECTED ENVIRONMENT

Soils 3-1

Water Resources 3-1

Vegetation 3-2

Riparian Vegetation 3-5

Wildlife 3-9

Wild Horses 3-14

Visual Resources 3-15

Cultural Resources 3-15

Recreation 3-15

Livestock Grazing 3-16

Geology, Energy, and Minerals 3-18

Forestry 3-18

Wilderness 3-19

Lands 3-24

Economic Conditions 3-25

Social Conditions 3-29

CHAPTER 4 - ENVIRONMENTAL CONSEQUENCES

No Action Alternative 4-1

Resource Protection Alternative 4-10

Mid-Range Alternative 4-25

Commodity Production Alternative 4-38

Preferred Alternative 4-51

Unavoidable Adverse Impacts 4-55

Short Term Use of the Environment in Relation to Long Term Productivity 4-56

Irreversible or Irretrievable Commitment of Resources 4-56

CHAPTER 5 - LIST OF PREPARERS 5-1

CHAPTER 6 - CONSULTATION AND COORDINATION 6-1

APPENDICES

Appendix A - The BLM Wilderness Review 7-1

Appendix B - Lahontan RMP Selective Management Criteria 7-2

Appendix C - Soils Found in the RMP Area 7-5

Appendix D - State Water Criteria 7-6

Appendix E - Defining Characteristics of Ecological Site Potentials 7-8

Appendix F - Interpretation of Ecological Condition 7-14

Appendix G
    Part 1 - Methodology for Estimating Change (Vegetation Condition) 7-15
    Part 2 - Methodology for Projecting Change (Vegetative Productivity) 7-23
    Part 3 - Methodology for Projecting Condition and Production for Vegetation Treatments 7-24

Appendix H - Recreation Use Formulation 7-25

Appendix I - Geology 7-26

Appendix J - Wilderness Study Policy and Planning Criteria 7-28

Appendix K - Methodology for Economics 7-30

Appendix L - Livestock Methodology and Analysis 7-36

GLOSSARY 8-1

BIBLIOGRAPHY 9-1

INDEX IN-1

LIST OF TABLES

TABLE NO.	TITLE	PAGE
1	Summary Table 1 - Short Term Management Actions	ii
2	Summary Table 2 - Comparative Review of the Environmental Consequences of the Alternatives	iii
2-1	Short Term Rangeland Improvement Projects by Alternative	2-3
2-2	Miles of Streams Identified for Riparian Protection	2-5
3-1	Existing Situation	3-4
3-2	Grazing Allotment Data	3-6
3-3	Critical Growth Periods for Key Plant Species	3-7
3-4	Average Phenology of Key Plant Species	3-8
3-5	Potential Threatened and Endangered Plant Species	3-10
3-6	Deer Harvest and Hunting Pressure	3-11
3-7	Chukar Population Estimates Chukar Harvest and Hunting Pressure	3-13
3-8	Allotment Management Problems	3-17
3-9	WSA Resources and Characteristics	3-20
3-10	Lahontan Area Population Growth	3-26
3-11	Churchill County Income and Employment	3-26
3-12	County Budget Summary	3-27
4-1	Projected Vegetation Condition (No Action)	4-3
4-2	Projected Vegetation Condition (Resource Protection)	4-12
4-3	Projected Vegetation Condition (Mid-Range)	4-27
4-4	Projected Vegetation Condition (Commodity Production)	4-40

App. B Table 1 - Criteria by Allotment 7-3

App. E Table 1 - Range Sites 7-10

App. G Table 1 - Utilization Data 7-18

App. I Table 1 - Minerals Favorability 7-27

App. K Table 1 - Cattle Ranch Budget (Winter) 7-32

App. K Table 2 - Cattle Ranch Budget (Yearlong) 7-33

App. K Table 3 - Ranch Livestock and Resource Data (Winter Operation) 7-34

App. K Table 4 - Rench Livestock and Resource Data (Yearlong) 7-35

App. L Table 1 - Projected Grazing Use - Resource Protection 7-37

App. L Table 2 - Projected Grazing Use - Mid-Range 7-38

App. L Table 3 - Projected Grazing Use - Commodity Production 7-39

CHAPTER I

INTRODUCTION, PLANNING ISSUES, AND PLANNING CRITERIA

Introduction

Purpose and Need

The purpose of this document is to present a preferred resource management plan and alternatives, and to analyze the environmental impacts of the preferred plan and alternatives. It is prepared pursuant to Section 202 of the Federal Land Policy and Management Act of 1976 (FLPMA) which requires that the Secretary of the Interior shall, with public involvement, develop land use plans which provide for the use of public lands. The National Environmental Policy Act of 1969 (NEPA) requires federal agencies to prepare statements documenting the environmental consequences of federal actions significantly affecting the human environment. Since resource management plans qualify as significant actions, the preparation of an environmental impact statement (EIS) is required.

The Lahontan Resource Management Plan (RMP) is designed to provide a framework for future management of the public lands in the Lahontan Resource Area (RA).

The Lahontan Resource Area consists of four planning units: Pyramid, Long Valley, Fort Churchill, and Clan Alpine. Land use decisions for the Pyramid and Long Valley units were analyzed as part of the Reno Management Framework Plan and grazing EIS. Those decisions will be incorporated into the Lahontan RMP by reference. For the purposes of this document, the Lahontan RMP area will consist of the Fort Churchill and Clan Alpine units.

The RMP area has about 2.4 million acres of public lands. Most of these lands are located in Churchill County. Smaller portions are located in Lyon, Mineral, Nye, and Storey counties (Planning Area Map).

The RMP is not a final implementation decision on actions which require further specific plans such as Allotment Management Plans (AMPs), or further process steps or decisions under specific provisions of law and regulations such as designation of wilderness areas. It is prepared with an interdisciplinary approach designed, "to achieve integrated consideration of physical, biological, economic and other sciences" (FLPMA, Sec. 202(c) (2)).

In addition to meeting the planning needs for the Lahontan RA, the RMP also fulfills other specific objectives. It is designed to meet the requirements resulting from settlement of a 1973 suit filed in federal court by Natural Resources Defense Council et. al. concerning the adequacy of BLM's programmatic grazing EIS. The RMP also includes evaluation of four Wilderness Study Areas (WSAs) as required by Section 603 of FLPMA.

In accordance with BLM policy, the following procedure will be used in addressing environmental concerns pertaining to wilderness designation. Environmental impacts of wilderness designation will be incorporated into the Bureau planning process through the draft RMP stage. This draft document presents the impacts to wilderness and other resources by alternative in summary form. Comments received on wilderness from this document will be presented in a Preliminary Final Lahontan RA Wilderness EIS to be published as a separate document from the final RMP. This EIS will be submitted through the BLM Director and Secretary of the Interior to the President. The recommendations contained in this final wilderness EIS will be preliminary because they are subject to change by the BLM Director, Secretary of the Interior, or President before they are presented to Congress for legislative action. Specific information is incorporated into the Lahontan RA Wilderness Technical Report which is available on request for those who desire more information. Appendix A presents the BLM Wilderness Review process consisting of inventory, wilderness study, and reporting channels to Congress.

The Planning Process

The planning process is described in detail in BLM planning regulations (43 CFR part 1600). It consists of nine basic steps: 1) Identification of Issues, 2) Development of Planning Criteria, 3) Inventory and Data Collection, 4) Analysis of the Management Situation, 5) Formulation of Alternatives, 6) Estimation of the Effects of the Alternatives, 7) Selection of the Preferred Alternative, 8) Selection of the Resource Management Plan, and 9) Monitoring and Evaluation. Steps one through seven have been completed. Step eight, Selection of the Resource Management Plan, will occur following publication of the final RMP. Step nine, Monitoring and Evaluation, will occur during and after implementation of the plan.

Planning Issues

During June, 1981, a newsletter explaining the planning process and requesting input from the public on identifying issues was released. Public workshops were held in July, 1981. As a result of this public input and analysis by BLM staff, three issues were identified.

Issue 1: Rangeland Management

This issue involves the use of vegetation on public lands by livestock, wild horses, and wildlife. Competition among grazing animals has resulted in overutilization of some critical riparian habitats.

Livestock grazing use is poorly distributed in parts of the RMP area. This is caused by a variety of reasons, including poor distribution of water, salting practices, fencing, topography, and livestock management. Livestock drift between allotments contributes to distribution problems as well as animal husbandry and administrative problems. In parts of the RMP area, grazing during the critical spring growth season has resulted in some deterioration of key species.

Issue 2: Wilderness

This issue involves the amount of acreage in four WSAs to be recommended as suitable or nonsuitable for wilderness designation and included in the National Wilderness Preservation System. These WSAs are: 1) Clan Alpine Mountains, 196,128 acres; 2) Stillwater Range, 94,607 acres; 3) Desatoya Mountains, 51,262 acres; and 4) Job Peak, 90,209 acres. These figures differ from those published in November, 1980 due to a more accurate calculation of each WSA during the wilderness study process. A portion (51,000 acres) of the Augusta Mountains WSA is also in the RMP area. However, it is not included in this document since it has been analyzed as a whole by the Winnemucca District.

Issue 3: Lands

This issue involves those lands suitable for transfer to other public agencies or private individuals. In general these lands are those where continued BLM management is not cost effective (e.g.; checkerboard lands near Fernley, Silver Springs, and the Carson Sink; lands identified for community expansion near Fallon, Gabbs, and Dixie Valley) as well as lands with possible agricultural potential in Edwards Creek Valley.

Other Planning Factors

One issue not included in this plan is the potential expansion of the Fallon Naval Air Station bombing range. Although this is likely to have significant effects on the RMP area, it is beyond the scope of this document and will be analyzed in a separate EIS which is being prepared by the Department of the Navy.

Off-road vehicle use was not considered an issue. Off-road vehicle problems are minimal and not expected to increase. Current problems occurring at Sand Mountain and Grimes Point have been analyzed in previous planning efforts. Proposals to limit ORV use at these areas can be implemented without additional analysis. The impacts of ORV use on wilderness related values will be analyzed in the wilderness issue.

Bureau specialists have reviewed lands within the planning unit for identification of Areas of Critical Environmental Concern. At the present time there are no designated ACECs in the planning unit, nor are there any potential ACECs identified.

Designation of rights-of-way corridors was not considered as an issue for the Lahontan RMP. During the development of the RMP, consideration was given to the May 1980 Western Regional Corridor Study. However, it was concluded that the management actions proposed in this RMP did not preclude rights-of-way proposals within the general areas identified for corridors in that study and that in the short term, all projected needs for such corridors could be accommodated within existing rights-of-way.

This plan proposes to designate right-of-way corridors along existing transportation and utility facilities where there is potential for future expansion, with a width of 1.5 miles on each side of the existing transportation/utility facility. Exceptions to this width requirement will be made on a case-by-case basis following a multiple use analysis of a specific proposal. The impacts of future transportation/utility facilities will be analyzed in environmental analyses or impact statements when applications for rights-of-way are received. Future rights-of-way corridors will be evaluated on a case-by-case basis and will be as consistent as possible with the Western Regional Corridor Study. This will be evaluated as part of the RMP monitoring process outlined in the Implementation section of Chapter Three.

Planning Criteria

A set of guidelines or criteria was developed to direct the resource management planning process. Draft planning criteria were made available for public review during July, 1982. Detailed descriptions of the criteria used for data and information collection, analysis of the management situation, development of alternatives, and for estimating the effects of the alternatives are available on request from the Carson City District Office. The following criteria apply to the selection of the preferred alternative.

Selection of the preferred alternative will be based on a combination of proposed management actions which provides for:

1) Improvement in the condition of public rangelands so as to enhance productivity for all rangeland values.

2) Increased overall habitat quality for wildlife and wild horses, and increased forage supplies to ensure the long term stability of the livestock industry.

3) Suitable wilderness recommendations where the wilderness values and the public benefits and uses that wilderness designation would provide are sufficient to offset the benefits of the resource uses that would be foregone; where public lands can be managed as wilderness in the long term; and where wilderness designation would contribute to the diversity of the National Wilderness Preservation System.

4) An ownership pattern that is efficient in terms of BLM management costs, and provides for community expansion and agricultural development.

CHAPTER 2

ALTERNATIVES

Introduction

Five resource management alternatives have been developed for the Lahontan Resource Management Plan (RMP) area. They are all multiple-use oriented, but each emphasizes a different balance between resources.

One alternative, No Livestock Grazing, was considered initially but dropped from further study as unreasonable and unrealistic because:

- It would not have resolved the grazing issues in the RMP area, overall vegetation utilization is only 38 percent, and the most significant problem is overuse of some riparian areas which would likely continue unless wild horses were also reduced significantly or eliminated;

- It would force the typical public land rancher out of business and result in a total direct, indirect, and induced loss to the local economy of $2.4 million annually and 263 jobs. This would result in the breakup of family and community stability. It would also likely result in prolonged litigation from the livestock industry as livestock grazing is a valid use of public lands as determined by law.

The elimination of this alternative was taken pursuant to section 1502.14 of the Council of Environmental Quality regulations.

No Action Alternative: This alternative represents a continuation of present resource management and use levels. Actions would be taken on a case-by-case basis as circumstances dictate.

Resource Protection Alternative: This alternative is oriented towards protection and enhancement of natural values with emphasis on wildlife and riparian habitats, wild horses, and wilderness.

Mid-Range Alternative: This alternative is designed to provide a balance between protection of natural values and production of commercial resources.

Commodity Production Alternative: This alternative is oriented towards production of commercial resources with emphasis on livestock and minerals.

Preferred Alternative: This alternative, like the Mid-Range, emphasizes a balance between resource uses. It reflects changes from the mid-range due to further analysis and public input in the scoping process.

These alternatives are focused on three issues:

Issue #1 - Rangeland Management: This issue primarily involves the use of vegetation by livestock, wild horses, and wildlife. Competition among grazing animals has resulted in overutilization of some critical riparian habitat. Livestock distribution is poor in some areas due to poor water distribution and livestock management. In some areas grazing during the critical spring growth season on an annual basis has resulted in some deterioration of key species.

Issue #2 - Wilderness: This issue involves the amount of acreage in four Wilderness Study Areas (WSAs) to be recommended as suitable or nonsuitable for wilderness preservation. A total of 432,206 acres are within the WSAs.

Issue #3 - Land Disposals: This issue involves the amount of acreage suitable for transfer to other public agencies or private individuals.

NO ACTION ALTERNATIVE

Objective

The objective of this alternative is to continue to manage public lands as at present.

Management Actions

RANGELAND MANAGEMENT

1. Livestock grazing use would continue to be licensed at the last three-years average licensed use level of 64,239 AUMs. There would be no decisions to change initial active preference.

2. The two existing allotment management plans (AMPs) would continue to be managed as written.

3. Additional unplanned and unscheduled rangeland improvement projects may be implemented to resolve site specific problems, as necessary, to maintain existing management practices.

4. Manage wild horses and their habitat at the 1982 level of 2190 head. Periodic gathers would be necessary to maintain this level.

5. Manage big game habitat for existing numbers (1662 AUMs).

WILDERNESS

1. None of the wilderness study areas would be recommended as suitable for wilderness designation.

WSA NAME	SUITABLE ACRES	NONSUITABLE ACRES
Clan Alpine Mountains (NV-030-102)	0	196,128
Stillwater Range (NV-030-104)	0	94,607
Desatoya Mountains (NV-060-228)	0	51,262
Job Peak (NV-030-127)	0	90,209
TOTAL	0	432,206

Note: These acreage figures are slightly higher than those published in November, 1980 due to a more accurate acreage calculation during the wilderness study process. There were no changes in the WSA boundaries. This does not include an additional 51 acres in the Desatoya Mountains WSA proposed for inclusion in the Resource Protection, Mid-Range, and Preferred alternatives.

LANDS

1. Land disposals would be considered on demand on a case-by-case basis.

RESOURCE PROTECTION ALTERNATIVE

This alternative focuses on the protection and enhancement of natural resource values with emphasis on wildlife and riparian habitats, wild horses, and wilderness.

RANGELAND MANAGEMENT

Objectives

Improve the condition of the public rangelands so as to enhance productivity for all rangeland values.

Provide for more uniform vegetation utilization.

Allow livestock grazing at use levels which would avoid significant conflicts with other resources.

Manage wild horses and their habitat in current use areas to achieve and maintain thriving populations of sound, healthy animals.

Maintain or improve wildlife habitat to support reasonable numbers.

Short Term Management Actions (0-5 years)

1. Authorize livestock use at 46,696 AUMs - a decrease of 27 percent from the last three-years average licensed use, to improve the condition of rangeland vegetation and important wildlife and wild horse habitat.

2. Defer grazing for three months in the spring to provide rest for key forage species during the critical growth season.

Table 2-1
SHORT TERM RANGELAND IMPROVEMENT PROJECTS BY ALTERNATIVE 1/

Livestock Improvements 2/	Resource Protection Projects/Cost	Mid-Range/ Preferred Projects/Cost	Commodity Production Projects/Cost
Wells (ea.)	3/ $ 39,600	3/ $ 39,600	5/ $ 66,000
Pipelines (mi.)	2/ 13,200	2/ 13,200	10/ 66,000
Windmills (ea.)	1/ 2,500	1/ 2,500	1/ 2,500
Storage Tanks (ea.)	4/ 18,000	4/ 18,000	4/ 18,000
Water Troughs (ea.)	16/ 4,800	16/ 4,800	20/ 6,000
Spring Developments (ea.)	2/ 2,000	2/ 2,000	2/ 2,000
Fences (mi.)	42/ 147,000	70/ 217,000	70/ 217,000
Cattle Guards (ea.)	6/ 18,000	9/ 27,000	9/ 27,000
Vegetation Treatments (ac.)	960/ 9,600	2,960/ 40,600	3,960/ 63,600
Livestock Costs	$254,700	$364,700	$466,100
Wild Horse Improvements 2/			
Water Developments	10/ $ 25,000	4/ $ 18,000	1/ $ 15,000
Wildlife Improvements 2/			
Aquatic and Riparian Habitat Protection (mi.) 3/	54.2/ 44,625	30/ 27,125	16.9/ 13,125
Pasture Fencing (mi.)	3.5/ 22,750	3.5/ 12,250	3.5/ 12,250
Spring Protection (ea.)	130/ 53,000	65/ 26,500	20/ 7,000
Wildlife Guzzlers (ea.)	15/ 22,500	7/ 10,500	3/ 4,500
Vegetation Treatments (ac.)	2,000/ 16,000	0	0
Wildlife Costs	$158,875	$ 76,375	$ 36,875
Total Cost	$438,575	$459,075	$517,975

1/ Specific additional projects have not been identified for the No Action alternative.

2/ These improvements will be designed to benefit all users. The categories used here are only to indicate the primary benefitting user.

3/ Aquatic and riparian habitat protection may include livestock deferment, rotation, change in period-of-use, fencing from wild horses and livestock, etc.

Source: USDI, BLM, Carson City District Division of Operations, 1983.

3. Develop AMPs/grazing systems for Category I allotments and grazing systems as needed on Category M and C allotments.

Proposed range improvements (Table 2-1) needed to support the above management actions would include:

a. The development of water facilities and systems which would include: 1) drilling three wells, 2) laying two miles of water pipeline, 3) installing one windmill, 4) four water storage tanks, 5) 16 water troughs, and 6) two spring developments.

b. Forty-two miles of fence would be constructed and would include six cattle guards.

c. Maintenance of existing land treatments would be accomplished by spraying 960 acres of old seedings.

The above management actions and range improvement implementation would provide more uniform utilization through improved livestock distribution, and would also provide an increase in available forage and water for livestock, wildlife, and wild horses.

4. Rangeland monitoring would be modified by incorporating the 1981 Nevada Range Monitoring Procedures. This would be used to determine if management objectives are being reached and if adjustments in livestock use, wildlife reasonable numbers, and wild horse numbers should be made.

When reasonable numbers of mule deer are attained, these numbers may be adjusted based upon joint monitoring studies by NDOW and BLM.

5. Periodic gathers would be necessary, after wild horse numbers have increased, to maintain the populations at approximately 2610 head.

6. Approximately ten waters would be developed to benefit the wild horses and their habitat. Actual sites will be identified in herd management area plans (HMAPs).

7. Manage for reasonable numbers of mule deer and bighorn sheep (3201 AUMs).

8. Improve and/or maintain in good or better condition selected aquatic and riparian areas, wetlands, meadows, springs, and aspen groves within wildlife habitat management plan and allotment management plan areas. This would include protection of 54.2 miles along 16 streams (Table 2-2), 1600 acres of meadows in Cherry Valley, 80 developed springs, and 50 undeveloped springs. Fifteen additional guzzlers would also be installed. These measures would be to enhance wildlife habitat.

9. Support reintroductions of bighorn sheep into historic habitat in the Stillwater, Clan Alpine, and Desatoya Mountain ranges, and reintroductions of Lahontan cutthroat trout into streams identified as historic habitat by the Nevada Department of Wildlife (NDOW).

10. Prescribe burn 2,000 acres to diversify wildlife habitat and improve bighorn sheep habitat.

11. Continue implementation of the Job Peak, Desert Mountain, and Sand Springs/Fairview Peak Habitat Management Plans (HMPs).

Long Term Management Actions (6-20 years)

1. In the long term, the range monitoring program would provide data on which to base any adjustments in livestock, wildlife reasonable numbers, and wild horse use, and to identify additional range improvements. All future adjustments would be designed to achieve the objectives of this alternative.

2. The initial assignment of allotments into the categories of "Maintain", "Improve", and "Custodial" would be evaluated periodically. These evaluations would assure that AMPs and range improvements would be initiated for those allotments requiring more intensive management.

3. More on-the-ground actions such as vegetation type conversion projects, water developments, and boundary and pasture fences may be developed to meet the objectives of this alternative.

4. Critical riparian and wetland areas would be monitored. Corrective action would be taken to improve these areas where necessary to bring them up to good condition. Additional habitat management plans would be developed as needed.

Table 2-2
MILES OF STREAMS IDENTIFIED FOR RIPARIAN PROTECTION BY ALTERNATIVE

Name	Location	Resource Protection	Mid Range	Commodity Production	Preferred
Big Dens	Desatoyas	6.0	6.0	6.0	6.0
Cold Springs	Desatoyas	1.7			
Eastgate	Desatoyas	7.0			
Edwards	Desatoyas	4.6	4.6	4.6	4.6
Park Canyon	Desatoyas	1.1	1.1		1.1
Pony	Desatoyas	1.6			
Willow	Desatoyas	3.4	3.4		3.4
Carson River	Churchill Butte	0.2	0.2		0.2
Bench	Clan Alpines	3.7			
Byers	Clan Alpines	1.8			
Cherry	Clan Alpines	4.6	4.6	2.3	4.6
Dyer	Clan Alpines	2.7			
Florence	Clan Alpines	2.4			
Horse	Clan Alpines	6.3	5.0	3.0	5.0
War	Clan Alpines	5.1	5.1	1.0	5.1
Cottonwood	Stillwaters	2.0			
TOTAL		54.2	30.0	16.9	30.0

WILDERNESS

Objective

To recommend the maximum amount of acres in the wilderness study areas as suitable for wilderness designation.

Management Action

1. Recommend all four WSAs as suitable for wilderness preservation. Add 51 acres contiguous to the Desatoya Mountain WSA for manageability reasons (see maps for Resource Protection Alternative).

WSA NAME	SUITABLE ACRES	NONSUITABLE ACRES
Clan Alpine Mountains (NV-030-102)	196,128	0
Stillwater Range (NV-030-104)	94,607	0
Desatoya Mountains (NV-030-110/NV-060-228)	51,262	0
Area Contiguous with Desatoyas (no unit number)	51	N/A
Job Peak (NV-030-127)	90,209	0
TOTAL	432,257	0

LANDS

Objective

To transfer out of public ownership only those lands with little national value, which are adjacent to communities.

Management Action

1. Transfer out of public ownership isolated tracts of land totaling 2100 acres near Fallon, Silver Springs, and Gabbs (Land Disposal Map).

MID-RANGE ALTERNATIVE

This alternative is designed to provide a balance between commercial uses and environmental protection of public land resources.

RANGELAND MANAGEMENT

Objectives

Improve the condition of the public rangelands so as to enhance productivity for all rangeland values.

Initially, manage livestock use at existing levels.

Initially, manage for wild horses and their habitat in current herd use areas at present population levels.

Initially, manage habitat for existing numbers of big game, while recognizing reasonable numbers as a management goal.

Maintain and improve wildlife habitat, including riparian/stream habitat, and reduce habitat conflicts while providing for other appropriate resource uses.

Short Term Management Actions (0-5 years):

1. Initially, authorize livestock use at the three-year average licenced use level of 64,239 AUMs. There would be no initial decision to adjust active preference.

2. Develop AMPs/grazing systems on Category I allotments and grazing systems as needed on Category M and C allotments to improve condition, provide for proper utilization within key areas, achieve better livestock distribution to obtain more uniform utilization, and provide an increase in available forage and water for livestock, wild horses, and wildlife.

The range improvements (Table 2-1) to support the above management actions would include:

a. The development of water facilities and systems which would include: 1) drilling three wells, 2) laying two miles of water pipeline, 3) installing one windmill, 4) four water storage tanks, 5) 16 water troughs, and 6) two spring source developments.

b. Construction of 70 miles of fence and installation of nine cattle guards.

c. Treatment of vegetation through spraying 1960 acres of brushland and old seedings, and developing 1000 acres of new seedings.

3. Adjust allotment boundaries of the Dead Horse Well, La Beau Flat, and Phillips Well allotments to provide for improved grazing management.

4. Continue existing rangeland monitoring studies, and establish new studies as recommended by the 1981 Nevada Range Monitoring Procedures, to determine if management objectives are being reached and what adjustments in livestock use, wildlife reasonable numbers, and wild horse numbers are necessary.

When reasonable numbers of mule deer are reached, these numbers may be adjusted based upon joint monitoring studies by NDOW and BLM.

5. Conduct wild horse gatherings as necessary to initially maintain the herds at the current population of 2190 head.

6. Approximately four waters would be developed to benefit wild horses and their habitat, consistent with other uses.

7. Manage wildlife habitat initially to provide 1,662 AUMs for existing big game (mule deer and bighorn sheep).

8. Continue implementation of the Job Peak, Desert Mountain, and Sand Springs/Fairview Peak HMPs.

9. Support reintroductions of bighorn sheep into historic habitat areas in the Stillwater, Clan Alpine, and Desatoya Mountains by NDOW.

10. Support reintroductions of Lahontan cutthroat trout into streams identified as historic habitat by NDOW.

11. Develop range improvements to protect and improve mule deer, sage grouse, bighorn sheep, fisheries, and riparian habitat, and to improve livestock and wild horse distribution and vegetation utilization. This would include protection of 30 miles along eight streams (Table 2-2) and 1600 acres of meadows at Cherry Valley. Approximately 40 developed spring sources and 25 of the undeveloped spring sources would be protected. Seven wildlife guzzlers would also be installed.

Long-Term Management Actions (6-20 years)

1. In the long term, the range monitoring program would provide data on which to base future adjustments in livestock, wildlife reasonable numbers, and wild horse use and identify additional range improvements. All future adjustments and improvements would be designed to achieve the objectives of this alternative.

2. The initial assignment of allotments into the categories of "Maintain", "Improve", and "Custodial" would be evaluated periodically. These evaluations would assure that the management objectives are being reached and that AMPs and range improvements would be initiated for those allotments requiring more intensive management.

3. Providing forage for reasonable numbers (3201 AUMs) of big game would be a long term objective.

It is anticipated that additional HMPs will be prepared and implemented in the long term.

WILDERNESS

Objective

In the formulation of this alternative those parts of the wilderness study areas with the lowest wilderness quality were removed from the portions recommended as suitable for wilderness designation. Portions of units were deleted in order to eliminate existing and potential manageability problems. The potential for other resource values was considered and areas of significant conflict were excluded. Lesser conflicts, especially in areas where wilderness values are high, were excluded only in conjunction with manageability problems. (See maps for Mid-Range Alternative).

Management Actions

1. Clan Alpine Mountains: A large portion (158,504 acres) of this unit is recommended suitable. Wilderness values are high, but some

adjustments were made to make portions of the boundary more identifiable. The boundary was pulled back in several places to exclude conflicts with mineral and geothermal potential. In the south the boundary was adjusted to eliminate manageability problems and woodland resource conflicts.

2. Stillwater Range: A portion of this unit (29,797 acres) is recommended suitable. Wilderness values are moderate. The boundary shown under this alternative eliminates the majority of known conflicts (energy and mineral activity, private inholdings, and manageability problems). That portion of the unit with the best wilderness values is retained, although it appears to have moderate to high mineral resource potential.

3. Desatoya Mountains: A large portion of this unit (43,045 acres) is recommended suitable. Wilderness values are high, conflicts are low through the great majority of the area, and it can be easily managed. The boundary in the northeast was adjusted to eliminate manageability problems. A boundary adjustment to enhance manageability added 51 acres contiguous to the WSA to that acreage recommended as suitable.

4. Job Peak: This unit is partially (37,477 acres) recommended as wilderness. Wilderness values are good in the central mountainous portion, and moderate to good in the west around Table Mountain. Boundaries were adjusted to exclude those areas with good mineral or geothermal potential and low wilderness quality, as well as areas with manageability problems.

WSA NAME	SUITABLE ACRES	NONSUITABLE ACRES
Clan Alpine Mountains (NV-030-102)	158,504	37,624
Stillwater Range (NV-030-104)	29,797	64,810
Desatoya Mountains (NV-030-110/NV-060-228)	43,045	8,217
Area Contiguous with Desatoyas (no unit number)	51	N/A
Job Peak (NV-030-121)	37,477	52,732
TOTAL	268,874 (62%)	163,383 (38%)

LANDS

Objective

To transfer out of federal ownership those lands identified as suitable or potentially suitable for disposal.

Management Actions

1. Designate for transfer from federal ownership a maximum of 116,500 acres. In general these lands are those where continued BLM management is not cost effective (e.g.; checkerboard lands near Fernley, Silver Springs, and the Carson Sink; lands identified for community expansion near Fallon, Gabbs, and Dixie Valley) as well as lands with possible agricultural potential in Edwards Creek Valley.

COMMODITY PRODUCTION ALTERNATIVE

This alternative focuses on commercial uses of public land resources. It emphasizes livestock and mineral production.

RANGELAND MANAGEMENT

Objectives

To enhance livestock production on a sustained yield basis by increasing AUMs areawide through range improvements and reductions in wild horse numbers.

To manage wild horses and their habitat for reduced numbers and maintain thriving populations of sound healthy animals.

To maintain habitat needed for existing levels of wildlife use, except where reintroductions of wildlife into historical habitats are identified.

Short Term Management Actions (0-5 years)

1. Authorize livestock use of 81,840 AUMs. This is based on the level of preference or the last three-year average licensed use, whichever is greater on an allotment basis (Table 3-2). This level is 27 percent above the last three-years average licensed use.

2. Develop AMPs/grazing systems for Category I allotments and grazing systems as needed in Category M and C allotments, while providing adequate livestock forage to meet grazing preference levels.

3. Adjust allotment boundaries in Dead Horse Well, LaBeau Flat, and Phillips Well allotments to provide for improved grazing management.

The range improvement projects (Table 2-1) needed to support the above management actions would include:

a. The development of water facilities and systems which would include: 1) drilling five wells, 2) laying ten miles of water pipeline, 3) installing one windmill, 4) four water storage tanks, 5) 20 water troughs and 6) two spring developments.

b. Construction of 70 miles of fence and installation of eight cattle guards.

c. Treatment of vegetation by spraying 1960 acres of brushland and old seedings, and developing 2000 acres of new seedings.

4. Rangeland monitoring would be modified by incorporating the 1981 Nevada Range Monitoring Procedures. This would assist in the determination of whether management objectives are being reached and the need to adjust livestock and wild horse use.

5. Gathering of wild horses would be conducted to reduce their population to 666 head and to maintain that level.

6. One water development would be constructed for wild horse use.

7. Manage big game habitat to provide 1662 AUMs of forage to maintain existing numbers of mule deer and bighorn sheep in each big game use area.

8. Continue implementation of the Job Peak, Sand Springs/Fairview Peak and Desert Mountain HMPs.

9. Improve and maintain in good or better condition aquatic and riparian habitat, wetlands, meadows, springs, and aspen groves in the wildlife habitat management plan areas. This would include protection of 16.9 miles along five streams (Table 2-2), 1600 acres of meadows in Cherry Valley, and 20 developed springs. Three guzzlers would also be constructed.

10. Support reintroductions of bighorn sheep into historic habitat areas in the Stillwater, Clan Alpine and Desatoya Mountains by NDOW.

11. Support reintroductions of Lahontan cutthroat trout into streams identified as historic habitat by NDOW.

Long Term Management Actions (6-20 years)

1. In the long term, the monitoring program would provide data on which to base adjustments in livestock and wild horse use and to identify the need for additional range improvements. All future adjustments and range improvements would be designed to achieve the objectives of this alternative.

2. The initial assignment of allotments into the categories of "Maintain", "Improve", and "Custodial" would be evaluated periodically. These evaluations would assure that the management objectives are being reached. Range improvements and AMPs would be initiated for those allotments requiring more intensive management.

3. The amount of vegetation available for big game and wild horse use would not change from that provided during the short term.

4. Additional livestock grazing AMPs, wild horse HMAPs, and wildlife habitat management plans (HMPs) and associated range improvements would be implemented in the long term.

WILDERNESS

Objective

In this alternative, only areas with the highest wilderness values were included as suitable for designation. Those parts of units presenting significant management problems were deleted. Only those portions of WSAs having no substantial conflicts with other resources, (i.e.; off-road vehicle use, energy or mineral development, or harvesting of woodland products) would be managed under wilderness designation. (See maps for Commodity Production alternative).

Management Actions

1. Clan Alpine Mountains: A portion of this unit (68,458 acres) is recommended suitable. Wilderness values are high. The northern boundary was adjusted to exclude areas of mining activity, good mineral and energy resource potential, and major cherrystem roads. Also excluded are areas in the south suitable for woodcutting. The east and west boundaries were drawn back to contour lines or section lines to exclude areas of high geothermal potential, low wilderness values, and mangeability problems posed by openness of the land and the presence of cherrystemmed routes.

2. Stillwater Range: This entire unit is recommended nonsuitable. Wilderness values are only moderate and conflicts with high mineral and energy development potential exist throughout most of the unit. Manageability problems are substantial.

3. Desatoya Mountains: This unit is partially (25,498 acres) recommended as wilderness. Wilderness values are high. The southwest boundary was drawn back to exclude an area of good woodland products potential. The northern boundary has been relocated in order to eliminate an area of oil and gas leasing. The eastern boundary was moved in order to eliminate areas of moderate mineral potential and moderate geothermal potential, as well as manageability problems associated with cherrystemmed routes and potential ORV use.

4. Job Peak: A portion of the unit (20,522 acres) is recommended suitable. Wilderness values are good in the central mountainous part of the unit and limited elsewhere. Boundaries were adjusted to exclude those areas with mineral and geothermal potential, low wilderness quality, and manageability problems caused by cherrystemmed routes associated with range development projects.

WSA NAME	SUITABLE ACRES	NONSUITABLE ACRES
Clan Alpine Mountains (NV-030-102)	68,458	127,670
Stillwater Range (NV-030-104)	0	94,607
Desatoya Mountains (NV-030-110/NV-060-228)	25,498	25,764
Job Peak (NV-030-127)	20,522	69,687
TOTAL	114,478 (26%)	317,728 (74%)

LANDS

Objective

To designate for transfer out of federal ownership those lands identified as suitable or potentially suitable for disposal.

Management Actions

1. Designate for transfer from federal ownership a total of 116,500 acres. In general these lands are those where continued BLM management is not cost effective (e.g.; checkerboard lands near Fernley, Silver Springs, and the Carson Sink; lands identified for community expansion near Fallon, Gabbs, and Dixie Valley) as well as lands with possible agricultural potential in Edwards Creek Valley.

PREFERRED ALTERNATIVE

This alternative, like the Mid-Range alternative, emphasizes balanced use of resources. It includes modifications of wilderness recommendations due to further analysis and public input during the scoping process.

RANGELAND MANAGEMENT

Objectives

Improve the condition of the public rangelands so as to improve productivity for all rangeland values.

Initially, manage livestock use at existing levels.

Initially, manage for wild horses and their habitat in current herd use areas at present population levels.

Initially, manage habitat for existing numbers of big game, while recognizing reasonable numbers as a management goal.

Maintain and improve wildlife habitat, including riparian/stream habitat, and reduce habitat conflicts while providing for other appropriate resource uses.

Short Term Management Actions (0-5 years)

1. Initially, authorize livestock use at the three-year average use level of 64,239 AUMs. There would be no initial decisions to adjust active preference.

2. Develop AMPs/grazing systems on Category I allotments and grazing systems as needed on Category M and C allotments to improve condition, provide for proper utilization within key areas, achieve better livestock distribution to obtain more uniform utilization, and provide an increase in available forage and water for livestock, wild horses, and wildlife.

The range improvements (Table 2-1) to support the above management actions would include:

a. The development of water facilities and systems which would include: 1) drilling three wells, 2) laying two miles of water pipeline, 3) installing one windmill, 4) four water storage tanks, 5) 16 water troughs, and 6) two spring source developments.

b. Construction of 70 miles of fence and installation of nine cattle guards.

c. Treatment of vegetation through spraying 1960 acres of brushland and old seedings, and developing 1000 acres of new seedings.

3. Adjust allotment boundaries in the Dead Horse Well, LaBeau Flat, and Phillips Well allotments to provide for improved grazing management.

4. Continue existing rangeland monitoring studies, and establish new studies as recommended by the 1981 Nevada Range Monitoring Procedures, to determine if management objectives are being reached and what adjustments in livestock use, wildlife reasonable numbers, and wild horse numbers are necessary.

When reasonable numbers of mule deer are attained, these numbers may be adjusted based on joint monitoring studies by NDOW and BLM.

5. Conduct wild horse gatherings as necessary to initially maintain the herds at the current population of 2190 head.

6. Approximately four waters would be developed to benefit wild horses and their habitat, consistent with other uses.

7. Manage wildlife habitat initially to provide 1,662 AUMs for existing big game (mule deer and bighorn sheep).

8. Continue implementation of the Job Peak, Desert Mountain and Sand Springs/Fairview Peak HMPs.

9. Support reintroductions of bighorn sheep into historic habitat areas in the Stillwater, Clan Alpine, and Desatoya Mountains by NDOW.

10. Support reintroductions of Lahontan cutthroat trout into streams identified as historic habitat by NDOW.

11. Develop range improvements to protect and improve mule deer, sage grouse, bighorn sheep, fisheries and riparian habitat, and to improve livestock and wild horse distribution and vegetation utilization. This would include 30 miles along eight streams (Table 2-2) and 1600 acres of meadows at Cherry Valley. Approximately 40 developed spring sources and 25 of the undeveloped spring sources would be protected. Seven wildlife guzzlers would also be installed.

Long Term Management Actions (6-20 years)

1. In the long term, the range monitoring program would provide data on which to base future adjustments in livestock, wildlife reasonable numbers, and wild horse use, and to identify additional range improvements. All future adjustments and improvements would be designed to achieve the objectives of this alternative.

2. The initial assignment of allotments into the categories of "Maintain", "Improve", and "Custodial" would be evaluated periodically. These evaluations would assure that the management objectives are being reached and that AMPs and range improvements would be initiated for those allotments requiring more intensive management.

3. Providing forage for reasonable numbers (3201 AUMs) of big game would be a long term objective.

It is anticipated that additional habitat management plans will be prepared and implemented in the long term.

WILDERNESS

Objectives

In the formulation of this alternative, wilderness designation is recommended for those study areas where wilderness values are capable of balancing other resource values and uses which would be foregone due to wilderness designation. Whether or not an area can be effectively managed as wilderness over the long term has also been considered.

Acreage with high quality wilderness characteristics and no major resource conflicts, major manageability problems, or significant combination of lesser conflicts or problems will be included in areas recommended as suitable. (See maps for Preferred Alternative).

Management Actions

1. Clan Alpine Mountains: A portion (68,458 acres) of this unit is recommended suitable. Wilderness values are high, the area can be managed as wilderness over the long term, and the great majority of resource conflicts have been eliminated.

2. Stillwater Range: This entire unit is recommended nonsuitable. Wilderness values are not of sufficient quality to warrant designation. Major resource conflicts and manageability problems exist and the Geology, Energy, and Minerals (GEM) report evaluation finds it to be one of the best "...potential areas for future metallic mineral finds of all the WSAs studied in the Basin and Range province ...".

3. Desatoya Mountains: A portion of this unit (43,096 acres) is recommended suitable. Wilderness values are high and outweigh the relatively minor resource conflicts which remain. Fifty-one acres were added to the WSA to enhance manageability of the area.

4. Job Peak: This entire unit is recommended nonsuitable. Wilderness values are moderate to good in portions of the WSA, however, they are not sufficiently high to either outweigh resource conflicts and manageability problems or warrant designation.

WSA NAME	SUITABLE ACRES	NONSUITABLE ACRES
Clan Alpine Mountains	68,458	127,670
Stillwater Range	0	94,607
Desatoya Mountains (Includes Area Contiguous with Desatoyas)	43,096	8,217
Job Peak	0	90,209
TOTAL	111,554 26%	320,703 74%

LANDS

Objective

To transfer out of federal ownership those lands identified as suitable or potentially suitable for disposal (Lands Disposal Map).

Management Actions

1. Designate for transfer from federal ownership a maximum of 116,500 acres. In general these lands are those where continued BLM management is not cost effective (e.g.; checkerboard lands near Fernley, Silver Springs, and the Carson Sink; lands identified for community expansion near Fallon, Gabbs, and Dixie Valley) as well as lands with possible agricultural potential in Edwards Creek Valley.

IMPLEMENTATION OF THE RESOURCE MANAGEMENT PLAN

Sequence of Actions

The selection of the final resource management plan will take place after publication of the final environmental impact statement. This plan will consist of one, or a combination of, the alternatives presented in this document.

In general, this resource management plan will be implemented through activity plans. These are detailed, site-specific management actions outlined in livestock AMPs, wildlife HMPs, wild horse HMAPs, and wilderness management plans among others. These plans will be multiple-use in nature. They will include actions such as range improvements and grazing systems. Monitoring will be used to ensure that plans meet their objectives.

Rangeland Program Summary

A rangeland program summary will be issued within five months of the completion date of the RMP to inform livestock grazing permittees and interested publics about the implementation of the rangeland management program.

The Rangeland Program Summary (RPS) explains the procedure involved in establishing initial and subsequent levels of livestock grazing use. Proposed grazing decisions and agreements will be announced as part of the RPS, and will include either initial livestock grazing use levels and identify the data needed and the procedures to be used in determining future adjustments.

Coordinated Resource Management and Planning

The preferred method of achieving public involvement in the implementation of this plan is the Coordinated Resource Management and Planning (CRMP) process. Through this process interested parties including livestock operators, representatives of interest groups, local, state and federal officials, and the general public will be given an opportunity to work together to resolve conflicts and strengthen management of public lands by developing recommendations about the implementation of this plan.

The Selective Management Policy

It is the policy of the Bureau of Land Management to address rangeland management problems through a selective management approach. This approach assigns management priorities among allotments within a planning area. This is based on identifying allotments with similar management needs, resource characteristics, and potential for improvement in both resource and economic returns. The similarity among the allotments allows them to be grouped into three categories with each having its own objective. The three categories and their objectives are: Maintain current satisfactory condition; Improve current unsatisfactory condition; or manage the allotments Custodially, while protecting existing resources.

The use of these allotment categories will help to establish priorities for distributing available funds and personnel in such a way as to achieve cost-effective improvement of rangeland production and condition. These resources will be used to develop grazing systems and install range improvements in order to resolve grazing related problems. These priorities identify those allotments where more intensive management is needed.

Allotments have been placed in the (M) Maintenance, (I) Improvement, and (C) Custodial categories using the criteria outlined in Appendix B.

Allotment Management Plans

Allotment management plans would be developed for all Category I allotments, and Category M and C allotments as needed. These plans would be multiple-use in nature and coordinated with wildlife and wild horse plans. Key components of AMPs are monitoring studies, grazing systems, range improvements, and evaluations.

Grazing Treatments and Systems

Grazing treatments are the building blocks of AMPs or grazing systems, and are designed to improve rangeland condition by manipulating livestock grazing to accomplish objectives of management. A grazing treatment describes the level of grazing use and periods-of-use for a unit (usually a pasture) of an allotment, or an entire allotment in one or more years. The deferrment of grazing, or complete rest from grazing during the critical growth period of key management species, would allow these species to maintain and/or increase their density, composition, vigor, production, and reproduction. The following treatments (singly or in various combinations) would be implemented to form grazing systems in AMPs for specific allotments in Category I within the Lahontan RMP area.

Treatment 1: Rest from livestock grazing for one or two growing seasons. Complete rest during the growing season allows key management species to improve vigor, increase litter accumulation, seed production, seedling establishment, and allows seedlings to develop adequate root growth to withstand appreciable grazing and trampling (Hormay, 1970).

Treatment 2: Livestock grazing from midsummer to fall (approximately July 16 to November 15 -- dates vary with allotment). Grazing after seed-ripe would provide better seed dispersal and trampling. When coupled with other treatments that provide for spring rest the following year, this treatment would allow an improvement in seedling establishment for key grass species and many shrubs.

Treatment 3: Following seedings which are implemented as a result of wildfire, prescribed burns, or herbicidal spraying, rest these areas from livestock grazing for two years. This treatment provides protection until seedlings are established and grazing would not be detrimental to the project.

Treatment 4: Defer livestock grazing from early spring to midsummer (approximately April 1 to June 30). This treatment could be required yearly, pastures could be rested during the spring in alternate years, or in accordance with some other schedule. Improved vigor and reproduction of key management species would result.

Where intensive grazing management systems are implemented, proper utilization levels may be exceeded during each grazing cycle. The periodic rest from grazing would allow the key management species to increase in vigor and production.

Range Improvements

Range improvements needed to implement grazing systems include fencing, water developments, and vegetation treatments. Projected improvements and their costs are outlined in Table 2-1.

Wildlife Habitat Management Plans

Wildlife habitat improvement projects (Table 2-1) would be guided by habitat management plans. These plans would be developed through consultation with interested parties and would be coordinated with livestock, wild horse, and wilderness plans. These plans would be focused on stabilization and improvement of wildlife habitat through water developments, grazing management, vegetation treatments, and monitorin studies.

Riparian protection measures (Table 2-2) would involve implementation and evaluation of grazing management systems and techniques which have been designed to enhance riparian habitat before initiating extensive fencing of specific areas to exclude wild horses and livestock. These measures would involve consultation and coordination with affected livestock permittees and other interested parties.

Wild Horse Herd Management Area Plans

Wild horse management would be guided by HMAPs. These plans would be developed through consultation with interested parties and would be coordinated with livestock and wildlife plans. They would be focused on wild horse management through determination of proper horse use levels, development of water sources (Table 2-1), and population and habitat monitoring studies.

Vegetation Monitoring

Future adjustments in livestock, wild horses, and wildlife reasonable numbers will be based on consultation with interested parties and an analysis of data from monitoring studies. This involves the use of vegetation study techniques to measure vegetation condition and trend, grazing utilization and distribution, actual use information, and climatic data. Appendix F contains a discussion of the manner in which ecological condition relates to management goals.

Category I allotments have the greatest number of resource conflicts and potential for improvement. Therefore, more intensive monitoring efforts, including frequency (1981 Nevada Range Monitoring Procedures), key forage plant utilization, weight estimate condition, actual use, and precipitation studies will be implemented or continued in these allotments to determine whether planning objectives are being met with proposed management and treatments. Management and/or grazing use levels may be changed based upon the results of these studies.

Few changes in management or treatments are anticipated for Category M and C allotments. Therefore, less intensive monitoring efforts, including utilization, actual use, precipitation, and perhaps a few frequency studies within key areas will be implemented or continued to determine whether current conditions are being maintained, and existing resources protected with present management.

Wilderness

All wilderness study areas would continue to be managed under BLM's Interim Management Policy until completion of the wilderness review process. Wilderness recommendations made in the final wilderness environmental impact statement are subject to change during administrative review. A separate final wilderness EIS will be prepared and filed by the Secretary of the Interior. A wilderness technical report describing each WSA in detail provides additional information in support of these documents. Following review of these documents, detailed mineral surveys will be conducted by the U.S. Geological Survey and Bureau of Mines for each area recommended as preliminarily suitable for wilderness designation. After review of this data, those areas determined to be suitable would be recommended to Congress for designation. Those areas determined to be nonsuitable would be recommended to Congress for elimination from wilderness consideration.

Designated wilderness areas would be closed to off-road vehicle use unless it takes place as part of a valid existing right or is authorized in the wilderness management plan. Separate management plans tailored to the characteristics of each area would be developed through consultation with interested parties. They would be coordinated with other activity plans for their areas. Specific management objectives, requirements, and decisions implementing administrative practices and visitor activities would be developed in each plan.
Designated wilderness areas would be segregated against appropriation and operations under the mining laws, mineral leasing laws, and other mineral disposal authorities subject to valid existing rights. Designation would allow for continuation of livestock grazing permits.

Lands

All land disposal actions proposed are

discretionary. Bureau initiatives for disposals, other than through exchange, would only be in those areas identified for disposal. Proposed land tenure adjustments would be evaluated through the environmental analysis process to determine if the action would be consistent with the objectives of the plan. These adjustments would be coordinated with interested parties, including local governments. Beneficial exchanges and non-bureau initiated realty proposals would be considered throughout the RMP area. These proposals could include sales, agricultural entry, Recreation and Public Purposes Act requests, easements, permits, leases, or rights-of-way.

Plan Monitoring

Monitoring will include not only the vegetation monitoring described above, but also monitoring the RMP itself. At intervals not to exceed five years, the management actions will be analyzed for consistency with plans adopted by local, state, and other federal agencies and Indian tribes, and new data will be analyzed to determine its significance to the plan.

Support Requirements

Support requirements such as cadastral survey, engineering design, additional inventories, etc., will be determined during the activity planning phase of this RMP when more specific proposals are available.

STANDARD OPERATING PROCEDURES

Certain requirements are inherent in the implementation of any Bureau action on the public lands. These requirements, or standard operating procedures, are designed to mitigate impacts and would be followed during supervision and construction of range improvements necessary for implementation of alternatives, including the proposed action.

1) An environmental review (i.e. environmental assessment) will be prepared before projects are developed except when they are covered by a categorical exclusion so that, depending on impact, implementation, modification, or abandonment of the project may be considered.

2) Cultural resource protection requires compliance with Section 106 of the National Historic Preservation Act of 1966, and Section 101(b)(4) of NEPA of 1969. Prior to project approval, intensive (Class III) field inventories will be conducted in specific areas that would be impacted by implementing activities. If cultural or paleontological sites are found, every effort will be made to avoid adverse impacts. However, where that is not possible, the BLM will consult with the State Historic Preservation Officer.

3) Any project which has a visual contrast rating that exceeds the recommended maximum for the visual class zone in which it is proposed, the visual contrasts are considered significant and mitigating measures must be examined. The ultimate decision in these cases of whether a particular project's visual impact is positive or negative, acceptable or unacceptable, and whether mitigating measures must be implemented, rests with the District Manager and must be made on a project-by-project basis.

4) Air quality will be protected as all Bureau and Bureau-authorized activities must be designed to prevent air quality deterioration beyond the established standards specified in the Nevada Ambient Air Quality Standards. The Federal Land Policy and Management Act of 1976 specifies the protection of air and atmospheric quality on BLM lands in Sec. 102(a)(8), and compliance with state and federal laws in Sec. 202 (c)(8). The Federal Land Policy and Management Act also requires an active role in preventing air quality violations on BLM lands in Sec. 102(c)(8). The Clean Air Act of 1977 has specific requirements for the federal land managers to protect the air over lands under their jurisdiction.

5) Public Law 92-195, December 15, 1971, "Wild Horse and Burro Protection Act", Sec. 4 requires that wild horses or burros that stray from public lands onto privately owned lands be removed upon request from the landowners.

6) Benefit Cost (B/C) analysis will be performed on improvements required to implement new AMPs and other activity plans subsequent to

the EIS. Such improvements will be analyzed on an allotment basis. The B/C analysis will be performed in compliance with Bureau policy.

7) Permanent roads would not be constructed into project sites. Existing access, off-road travel, or temporary roads which would be rehabilitated after construction activity would be used.

8) Construction of all fences would conform with the objectives and specifications in Bureau Manual 1737 to assure minimization of impacts to wildlife, wild horses, recreation, and visual resources.

9) Fences in wild horse herd use areas would be located to minimize interference with the normal distribution and movement of wild horses. Selected portions of new fences constructed in these areas would be flagged or otherwise marked for one year after construction to make them more visible to horses.

10) The clearing of vegetation from project sites would be restricted to the minimum amount necessary.

11) Application of herbicides, such as 2,4-D, on proposed treatment areas to reduce sagebrush and other plant species would be in accordance with procedures established in Bureau Manual 9222 to ensure nonimpairment of other than target species.

12) All disturbed areas would be rehabilitated, where such action is necessary and practical, to replace ground cover and prevent erosion.

13) Maintenance of structural improvements shall be provided by the user deriving the primary benefit from the improvement through cooperative agreements and as specified in the bureau's 1982 Rangeland Improvement Policy.

14) Lands would not leave federal ownership if the required mineral report concludes that the mineral potential of the land is of greater than nominal value.

15) Lands not identified as suitable for disposal would be retained in public ownership. The determination of suitability will include an analysis of threatened and endangered species, wetlands, and riparian areas, and flood plains.

16) All public land within the RMP area will be designated to control ORVs. All lands not specifically designated closed or limited to ORVs will be open to such use.

17) Rights-of-way for public access would be reserved prior to disposal of lands.

18) None of the lands identified as suitable for disposal would be transferred to other ownership if a cultural resources survey shows that they contain sites determined to be eligible for inclusion in the National Register of Historic Places.

19) Livestock permits would be adjusted, if necessary, to reflect decreases in public land acreage available for livestock grazing use within an allotment as a result of land disposal.

20) Fire management plans would be developed before any prescribed burning occurs.

21) Each wilderness study area will be managed in accordance with Section 603(c) of FLPMA and the Interim Management Policy and Guidelines for Lands Under Wilderness Review (1979) in order to preserve its wilderness characteristics until Congress either designates it as wilderness and includes it in the National Wilderness Preservation System, or officially releases it from further wilderness consideration. After designation as wilderness by Congress, each wilderness area will be managed in accordance with the Wilderness Management Policy (1981) and the wilderness management plan developed for tha individual area.

22) Lands released by Congress from further wilderness consideration will be managed in the same manner as similar lands in the Preferred Alternative.

23) A "threatened" or "endangered" species clearance for plants or animals would be required before any part of the plan were implemented that would affect a threatened or endangered species or its habitat. If any part of the plan would impact a threatened or endangered species or its habitat, the impacts of the project would be mitigated, or the project abandoned if appropriate measures were not feasible.

24) Water would be made available in allotments and rested pastures for wild horses and wildlife, wherever feasible.

25) Spring improvement projects would be fenced and water would be piped away from the source to a trough or pond if necessary. Water would also be left at the spring source.

26) Where the need is identified for wildlife use, water improvements would include bird ramps in watering troughs, lateral water sites off pipelines, overflows at troughs, protected seep areas, and fences around spring developments.

27) Alteration of sagebrush areas either through applicaiton of herbicides, prescribed burning, or by mechanical means would be in accordance with the Memorandum of Understanding between the Nevada Department of Wildlife and Bureau of Land Management. These procedures specify among other things, that vegetation control measures would be prohibited on sage grouse breeding complexes, wintering grounds, or within 100 yards of a stream or meadow.

28) Livestock grazing would be deferred for at least two growing seasons on all vegetation manipulation projects, including prescribed burns, to allow vegetation to be established.

29) Mineral resources survey reports will be prepared by the U.S. Geological Survey and the U.S. Bureau of Mines on all areas with a preliminary recommendation as suitable for wilderness designation. The mineral resources reports will become part of the information used for the final recommendations on wilderness suitability.

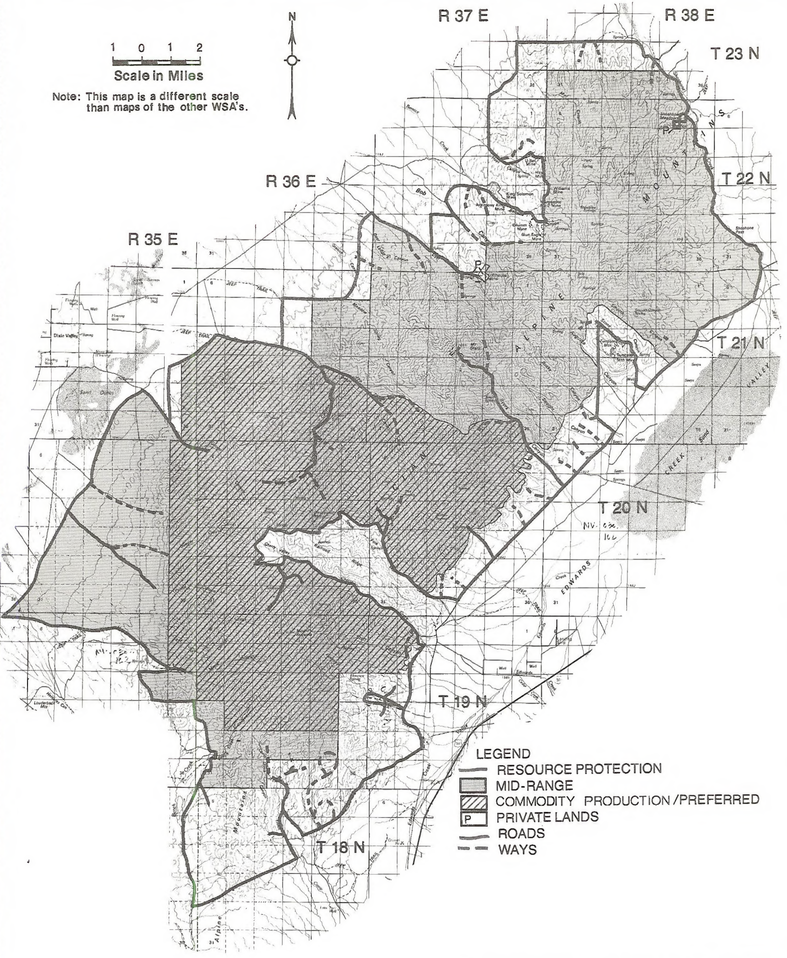
30) After December 31, 1983, lands designated as wilderness will be withdrawn from all forms of appropriation under the mining laws and from disposition under all laws pertaining to mineral leasing unless Congress specifically provides otherwise.

31) Reasonable access will be allowed for all valid rights established prior to wilderness designation.

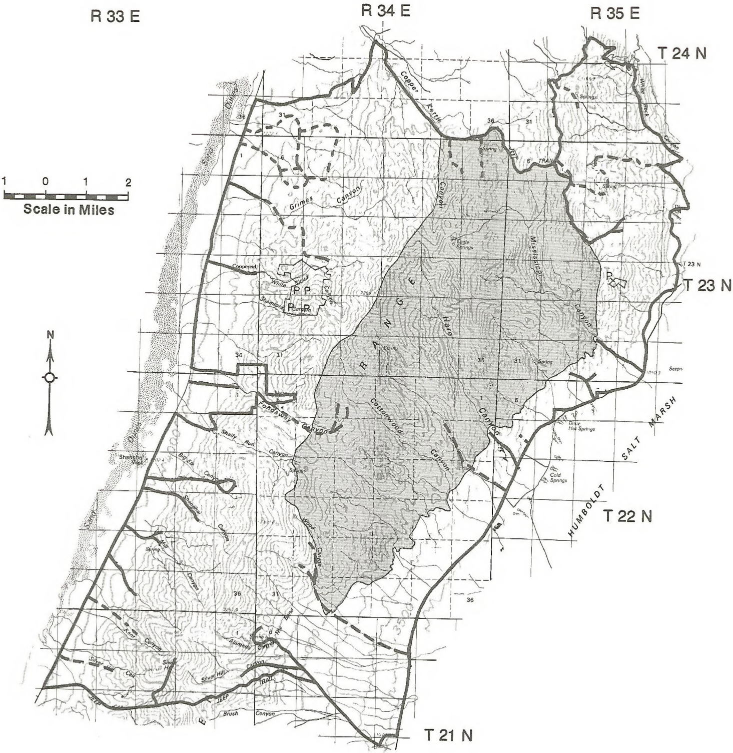
32) Operations on valid mining claims located in a designated wilderness will be authorized pursuant to 43 CFR 3809 and subject to the provisions of the Wilderness Act.

33) Plans of Operation and Applications for Permit to Drill on oil and gas and geothermal leases within a designated wilderness area will be reviewed in accordance with NEPA subject to the provisions of the Wilderness Act.

ALTERNATIVE
MAPS



WILDERNESS ALTERNATIVES
CLAN ALPINE MTNS. NV-030-102



LEGEND

RESOURCE PROTECTION

▨ MID-RANGE

NONE NO ACTION/ COMMODITY PRODUCTION /PREFERRED

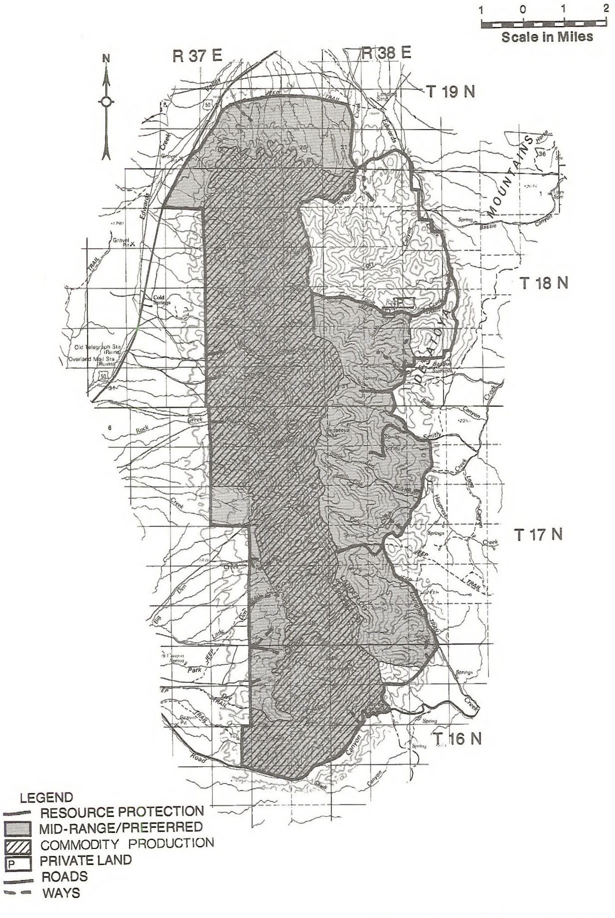
P PRIVATE LAND

ROADS

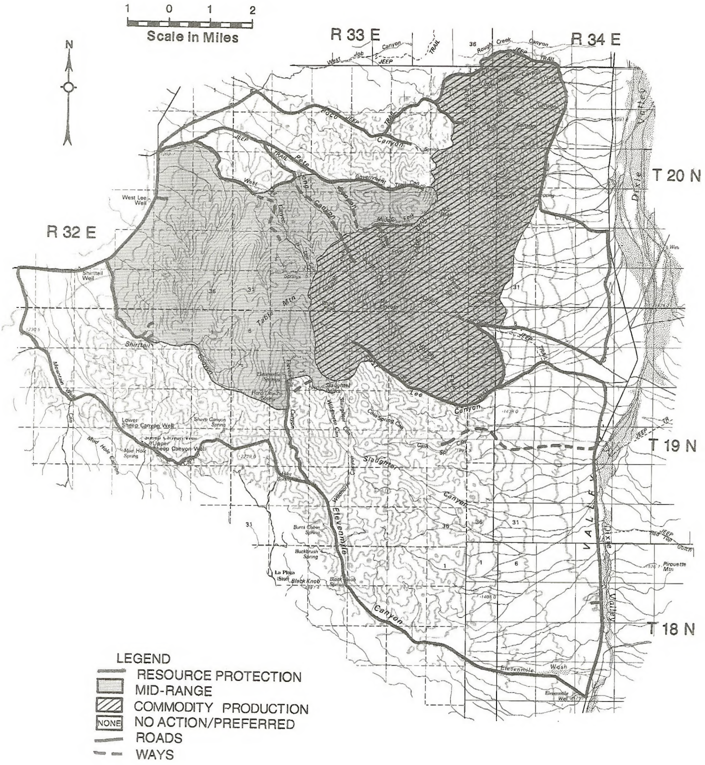
WAYS

WILDERNESS ALTERNATIVES

STILLWATER RANGE NV-030-104



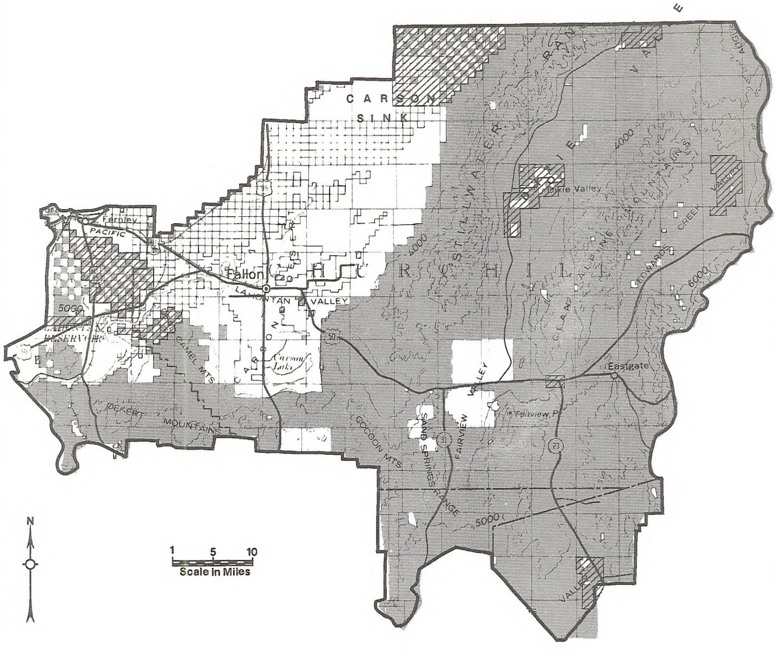
WILDERNESS ALTERNATIVES
DESATOYA NV-030-110



WILDERNESS ALTERNATIVES

JOB PEAK NV-030-127

▨ PUBLIC LANDS DESIGNATED AS SUITABLE FOR DISPOSAL



UNITED STATES DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT
CARSON CITY DISTRICT
LAHONTAN RESOURCE MANAGEMENT PLAN AREA

LAND—DISPOSAL

CHAPTER 3
AFFECTED ENVIRONMENT

Introduction

This chapter describes the resources and uses of the Lahontan RMP area which may be affected by the alternatives proposed in this plan. Further information is available from the Carson City District Office. Resources not included, such as air quality and topography, were not described because they are not expected to be affected. Resources and uses described are:

1. Soils
2. Water Resources
3. Vegetation
4. Riparian Vegetation
5. Wildlife
6. Wild Horses
7. Visual Resources
8. Cultural Resources
9. Recreation
10. Livestock Grazing
11. Geology, Energy, and Minerals
12. Forestry
13. Wilderness
14. Lands
15. Social and Economic Conditions

SOILS

A third order soil survey has been completed by the Soil Conservation Service (SCS) on all public land in the Lahontan RMP area. However, the completed reports will not be published for some time. Information in the Churchill, Nye, and Mineral County advance data reports contain physical and chemical properties in addition to soil series and vegetation (ecological site) compositions of delineated mapping units. Land capability classification ratings and other interpretations are also included. Soil series and vegetation compositions for Lyon County are available from the SCS in narrative form only at this date. A description of the soils found in the RMP area can be found in Appendix C.

Erosion

The soils in the Lahontan RMP area are in a relatively stable condition in regard to topsoil loss through erosion. Erosion averages 1.1 tons per acre/year (Appendix C). For the most part, they appear to be capable of withstanding continued normal, and even heavy grazing pressures. In most of the identified poor ecological condition sites, there has been a sufficient plant cover of unpalatable species maintained to keep erosion to a minimum. However, there are scattered areas where wind erosion, due to a lack of plant cover, is occurring. These areas are usually adjacent to watering or holding areas and are usually quite small (less than 20 acres).

Specific problem areas occur within the RMP area. Channel erosion exists in four areas: Middlegate Creek, Horse Creek, Edwards Creek, and War Canyon. Accelerated wind erosion is occurring in the Dixie Valley Wash and lower Bench Creek areas, and Cherry Valley meadows has a serious gullying problem.

Channel and gulley erosion is a problem on most perennial and some intermittent streams that are not protected from grazing pressures. Both downcutting and lateral bank erosion are problems occurring in the stream channels in the area.

WATER RESOURCES

The Lahontan RMP area consists of closed basins with the majority of surface runoff terminating in the Carson Sink, Dixie Valley, Edwards Creek Valley or Gabbs Valley. The only exception is the southwestern corner of the RMP area which drains south into the Walker River. However, most surface runoff originating in the higher elevations infiltrates or evaporates before reaching the valley floors. The hydrology of the area is typical of the eastern Sierra rain shadow, with most of the precipitation occurring in the winter and peak flows occurring in mid to late spring. Average annual precipitation in the area ranges from approximately four inches per year in the valley floors to over 14 inches in the higher elevations (USDI, BLM, Nevada Watershed Studies Annual Report, 1978).

Surface Water

Surface water on public land within the RMP area consists of approximately 560 springs, 11 reservoirs and ponds, and 60 miles of perennial streams. The majority of the water sources occur in the Stillwater, Clan Alpine, and Desatoya Mountains (BLM Water Source Inventory, 1981). The occurrence of surface water is a major factor in determining livestock distribution and the distribution and size of wildlife and wild horse populations. Most streams flowing over public land are intermittent or have interrupted flow, with only six streams having a perennial length of over four miles. Springs vary in size from small intermittent seeps to those with flows exceeding 50 gallons per minute. Beneficial uses of surface water include: livestock, wildlife, and wild horse watering, wildlife habitat, fisheries, recreation, irrigation, mining, milling, and domestic use.

Ground Water

Ground water yields and quality are highly variable within the RMP area, depending on the geology of the alluvium forming the valley fill reservoirs (Nevada Water Res. - Recon. Series #59, 1963; BLM Water Source Inventory, 1981). Stockwatering wells range from artesian flowing wells to wells of over 500 feet deep. Generally the ground water is suitable for livestock, wildlife, and wild horse watering. There are approximately 100 stockwatering wells on public land within the area (BLM Water Source Inventory, 1981).

Water Quality

In 1980, 42 representative surface water sources were sampled and analyzed by BLM for water quality. The results of the analysis showed that for parameters tested all but one of the sampled sources were suitable for livestock and wild horse watering. The upper reaches of Cherry Creek and five of the 31 sampled springs (16 percent) exceeded the State of Nevada criteria for fecal coliform and/or pH for wildlife propagation (Appendix D). Edwards Creek was the the only fishery sampled and the analysis showed it exceeded the State criteria for turbidity (Sierra Envir. Monitoring Report, 1981). Problems with excessive Total Dissolved Solids (TDS) levels do exist in some wells located near the Carson Sink and Humboldt Salt Marsh areas in Dixie Valley (Nevada Water Res. - Recon. Series #59 & #23, 1963; BLM Water Source Inventory, 1981).

VEGETATION

Existing Conditions

The extensive diversity of the vegetation communities within the Lahontan RMP area is a reflection of the wide range of physiographic, edaphic, topographic and climatic conditions. The salt-desert shrub, sagebrush-bunchgrass, and pinyon-juniper woodland vegetation zones typical of the Great Basin sagebrush province are found in this RMP area.

The salt-desert shrub communities are characterized by shadscale, Bailey greasewood, bud sagebrush, black greasewood, and a combination of cool and warm season perennial mid grasses (e.g.; needlegrass, bluegrasses, Indian ricegrass and galleta grass). The sagebrush communities are generally dominated by various species of sagebrush and a combination of cool and warm season perennial mid grasses. Some black sagebrush or Wyoming big sagebrush communities which occur at lower elevations and/or in the southern half of the Lahontan RMP area, however, often include a significant amount of shadscale, Bailey greasewood, and warm season perennial grasses. The woodland communities are generally characterized by Utah juniper and pinyon pine in pure or mixed stands. The understory is usually dominated by species of sagebrush and cool season perennial mid grasses (e.g.; needlegrass, bluegrass, and bottlebrush squirreltail).

Ecological Sites and Potential

Climate, elevation, exposure, slope and soil type combine in varying degrees to define specific growth environments which support specific associations of plant species. In the course of the Fallon-Fernley, Lyon, Churchill, Mineral and Nye County soil surveys, which encompass the Lahontan RMP area, these specific associations of plant species were identified and correlated to 69 ecological sites. Appendix E, Table 1 summarizes some of the important identifying characteristics for those ecological sites encountered in the Lahontan RMP area. Each site is a distinctive kind of rangeland that differs from other kinds of rangeland in its ability to produce a characteristic natural plant community. These sites have been assigned to three potential categories; low, moderate, and high, based upon their capability to improve in condition in response to grazing and/or mechanical treatments. Appendix E summarizes some of the characteristics which define these potential categories, and Table 1 of Appendix E lists the potential ratings assigned to each ecological site.

The most common ecological sites, representing 68 percent of the Lahontan RMP area, are those dominated by salt tolerant shadscale, Bailey greasewood and black greasewood. Those sites dominated by black greasewood generally occur on floodplains, lower lake terraces, alluvial flats and lower fan skirts where a water table is present within the root zone. These sites are found at elevations from 3,500 to 5,000 feet. The sites dominated by shadscale and/or Bailey greasewood are more widespread and may occur on fan remnants, alluvial fans, old lake terraces, foothill slopes, and lower mountain sideslopes at elevations from 4000 to 6500 feet. All these sites generally occupy soils with high alkalinity and/or a high percentage of soluble salts, receive four to eight inches of precipitation annually, and generally exhibit low potential for improvement in ecological condition.

The sagebrush dominated ecological sites represent 23 percent of the RMP area. These sites occur on upland terraces and alluvial fans, mountain valley fans, foothill slopes, and mountain side slopes and ridges at elevations from 5000 to 9500 feet. Low sagebrush and black sagebrush sites generally occur on soils that are shallow or have restrictive layers, receive eight to 12 inches of precipitation annually, and exhibit low potential for improvement in ecological condition. Wyoming big sagebrush sites generally occupy sandy or loamy soils that are moderately deep or deep, receive eight to 12 inches of precipitation annually, and exhibit moderate potential for improvement. Mountain big sagebrush sites usually occur on deep loamy soils, receive 12-16 inches of precipitation annually, and exhibit high potential for rapid improvement in ecological condition and vigor with improved management. Barring any physical limitations such as stoniness, extremely sandy texture, or steep slope, the moderate and high potential sites generally respond very well to vegetation treatments.

The woodland sites represent nine percent of the Lahontan RMP area. These sites occur on upper foothill side slopes, ridges and mountain side slopes at elevations from 5,000 to 8,000 feet. They occupy loamy soils that are shallow and/or stony, receive eight to 14 inches of precipitation annually, and exhibit low potential for improvement. Low sagebrush or black sagebrush generally are the dominant understory species on shallow soils or at lower elevations, while Wyoming big sagebrush, gooseberry, and rabbitbrush are more abundant on moderately deep soils at higher elevations.

Analysis of the soil surveys and ecological sites within the RMP area indicates the following overall site potential for each vegetation zone: within the salt-desert shrub zone 1,255,546 acres (56 percent of the total acres with a potential determined) have low potential, 224,109 acres (ten percent) have moderate potential, and 50,048 acres (two percent) have high potential; within the sagebrush-bunchgrass zone 181,300 acres (eight percent) have low potential, 326,102 acres (14 percent) have moderate potential, and 17,834 acres (one percent) have high potential; and within the woodland zone 199,955 acres (nine percent) have low potential.

Ecological and Forage Condition

Ecological condition is the expression of the relative degree to which the kinds, proportions and amounts of plants in a plant community resemble those of the climax plant community for the site (Appendix F). Forage condition is a measure of the present state of health of a range based upon the relative abundance of preferred and desirable plant species present and the total annual herbage it is capable of producing for different kinds of livestock and/or wild horses under multiple-use management. Forage condition was determined for woodlands and seedings for which ecological condition does not apply. A summary of ecological condition and forage condition within the Lahontan RMP area is shown by allotment in Table 3-1.

An overall summary of the acreage of public land within each ecological condition class shows 308,079 acres (14 percent of the acres for which condition has been determined) in poor (early

TABLE 3-1
EXISTING SITUATION

		ECOLOGICAL CONDITION				FORAGE CONDITION [1/]			
ALLOTMENT NAME	TREND[2/]	POOR	FAIR	GOOD	EXCELLENT	POOR	FAIR	GOOD	EXCELLENT
Adriance Valley		2,322	29,409						
Bass Flat	up	5,799	21,298	15,198					
Bell Flat		3,327	64,269	21,781	749	1,238			
Boyer Ranch		17,584	46,982	23,020		12,373			
Bucky O'Neill			12,269	19,159					
Churchill Butte		531	6,647	2,365					
Clan Alpine		9,547	127,031	72,613	1,806	53,563	7,592	3,658	
Cleaver Peak		784	16,156	19,942					
Clifton Flat		518	6,845						
Copper Kettle		2,996	25,687	14,361		9,471	498		
Cow Canyon		44,532	38,797	1,887		24,051			
Deadhorse Well		1,845	39,401	29,846	210				
Desert Mtn.	up	236	9,480	10,389					
Dixie, Hare, Miss.	down	93,222	130,423	5,923		32,166	2,194	4,069	
Eastgate		19,947	158,926	94,476	5,884	2,721	13,846	2,879	
Edwards Creek		1,327	24,794	13,712	3,693	10,684	2,675		
Fort Churchill		1,441	12,569	422					
Frenchman Flat			36,324	30,165					
Hole-in-the-Wall		45,406	34,644	2,429		1,323			
Horse Mtn.		1,090	29,939	26,991					
Horse Springs		4,278	9,926	400		344			
LaBeau Flat		15,427	76,278	41,741		917			
Lahontan	up	6,791	26,053	14,763	342				
Mtn. Well/La Plata		10,549	65,888	51,459	354	1,297	3,100		
Phillips Well	up	685	15,048	24,677	512				
Rock Springs		545	8,692	7,871					
Salt Wells		1,216	16,232	29,978					
Stockton Flat		2,201	7,026						
Truckee/Virginia		1,690	18,484	486					
White Cloud		12,243	31,024	8,938		10,840	233		
TOTAL		308,079	1,146,541	584,992	13,550	160,988	30,138	10,606	

[1/] woodlands and seedings
[2/] Carson City District Files

This table does not include that portion of the New Pass Unit of the Mt. Airy allotment (Battle Mtn. District) within the RMP area (4,328 acres) due to lack of data. This allotment was analyzed in the Shoshone Eureka RMP prepared by the Battle Mountain District.

Source: Vegetation Inventory, 1980-82, Lahontan Resource Area, Carson City District, Nevada seral), 1,146,541 acres (51 percent) in fair (mid-seral), 584,992 acres (26 percent) in good (late seral), and 13,550 acres (.5 percent) in excellent condition. A summary of the acreage within each forage condition class shows 160,988 acres (seven percent) in poor, 30,138 acres (one percent) in fair, and 10,606 acres (.5 percent) in good condition. Calculations are based on the acreage having ecological or forage condition and does not include 200,315 unclassified acres (i.e., rock outcrop, playa, badlands, etc.).

Overall, the salt-desert shrub sites are in better ecological condition than the mid and high elevation sagebrush-bunchgrass sites (Lahontan Vegetation Condition Inventory, 1982; Appendix G, Part 1).

Trend

While vegetation condition is a comparison of the present plant species composition and production to the climax plant community, trend is the direction in which vegetation condition is moving.

The summary provided in Table 3-1 shows 151,271 acres (seven percent), or four allotments, with upward trend; 267,997 acres (12 percent) or one allotment, with downward trend; and 1,835,626 acres (81 percent), or 25 allotments with static or no apparent trend (Appendix G, Part 1).

Utilization

The key forage plant method, as described in BLM Manual 4412, has been used for several years to determine the degree and distribution of vegetation utilization. These studies indicate that 9400 acres or less than one percent of the RMP area is being severely utilized (81-100 percent), 531,000 acres or 22 percent is being heavily utilized (61-80 percent), 1,375,000 acres or 56 percent has slight to moderate utilization (one to 60 percent), and 540,000 acres or 22 percent is unuseable or not used. The last three years average utilization by allotment ranges from 10 to 57 percent. One allotment, Clan Alpine at 57 percent, exceeds 55 percent average utilization, the recommended level in the 1981 Nevada Rangeland Monitoring Procedures. Average utilization for the RMP area is 38 percent (Table 1 in Appendix G, Part 1; also Table 3-2).

Phenology

In the Lahontan planning area some native ranges have been repeatedly grazed during the critical growth periods for key plant species, resulting in the reduction of both the quality and quantity of forage.

The critical growth period for most of the perennial grass species is approximately April through July with growth often beginning by mid-March. This early growth uses carbohydrate root reserves stored the previous year during the critical growth period. Most perennial grasses reach the seed ripe stage by July, and by September replenish their root reserves and complete their life cycles (Nevada Rangeland Phenology, NRC, Inc., 1976-79).

The critical growth period for desert shrub species, primarily winterfat and four-wing salt bush, is approximately from mid-March to October (Nevada Rangeland Phenology, NRC, Inc.). These species may receive heavy use while dormant with little effect on plant vigor, but anything more than light grazing during the critical growth periods results in reduced plant vigor (Cook, 1966; Tueller, 1966).

Table 3-3 lists the approximate critical growth periods for several key plant species. Table 3-4 depicts the average phenology for most of the key species within the Lahontan RMP area.

RIPARIAN VEGETATION

Riparian and aspen sites are discussed further because they are limited in occurrence and are highly attractive to wildlife, livestock and wild horses. These small springs, seeps, aspen and cottonwood patches, streams and ponds comprise less than one percent of the total land area but provide necessary (critical) habitat components for wildlife in the RMP area (Thomas et al, 1980).

Riparian areas in the Lahontan area are characterized by tufted hairgrass (Deschampia caespitosa), timothy (Phleum pratense), bluegrass (Poa spp.), willows (Salix spp.), rose (Rosa woodsii), sedges (Carex spp.), rushes (Juncus spp.), cottonwood (Populus fremontii) and aspens (Populus tremuloides). Aspen stands exist

TABLE 3-2
GRAZING ALLOTMENT DATA

Allotment	Grazing Preference (AUMs)	Avg. 3 Yr. Lic. Use (AUMs)	Livestock Period-of-Use	Kind of Stock	Acres Public Land	Mule Deer Demand 2/		Bighorn Sheep Demand 2/		Wild 3/ Horse Demand	Average 4/ Percent Utilization	5/ Trend	Category
						Existing	Reasonable Numbers	Existing	Reasonable Numbers				
Adriance Valley	1,620	1,620	03/01 - 02/28	C	31,790	0	0			0	29		C
Bass Flat	1,000	1,500 1/	11/16 - 04/15	C	46,789	0	0			0	42	up	M
Bell Flat	3,600	3,950	12/16 - 04/15	C	91,855	0	0			0	52		M
Boyer Ranch	2,034	1,813	03/01 - 02/28	C	127,194	23	39			72	28		M
Bucky O'Neill	1,500	1,500	11/16 - 04/15	C	39,054	0	0			0	50		M
Churchill Butte	937	937	10/01 - 03/31	C	9,843	0	0			0	10		M
Clan Alpine	1,680	1,164	12/05 - 03/15	S	296,791	606	870			7512	57		I
	8,400	6,308	04/16 - 12/15	C									
Cleaver Peak	1,250	1,250	11/01 - 03/31	C	41,229	0	0			0	40		M
Clifton Flat	180	360	11/01 - 03/31	C	7,589	0	0			0	9		M
	180												
Copper Kettle	2,333	2,331	03/01 - 02/28	C	74,555	15	21			288	51		I
Cow Canyon	2,200	1,822	05/01 - 10/15	C	125,484	233	336		360	4200	44		I
Dead Horse Well	0	0		S	77,031	0	0			0	N/A		C
Desert Mountain	840	840	11/01 - 03/31	C	22,417	0	0			108	39	up	M
Dixie Valley-Miss.- Hare Canyon 7/	6,645	5,761	03/01 - 02/28	C	282,801	202	291			9456	44	down	I
Eastgate	10,798	7,702	06/16 - 04/15	C	306,411	47	72		360	480	48		M
	2,250	0	11/01 - 03/31	S									
Edwards Creek	3,492	2,181	05/01 - 03/31	C	58,820	280	402			972	33		I
Fort Churchill	560	560	11/01 - 06/30	C	15,059	0	0			0	36		M
Frenchman Flat	1,750	1,679	11/01 - 04/15	C	67,126	0	0			0	31		M
Hole-in-the-Wall	2,675	1,222	11/01 - 03/15	C	84,204	47	57			1740	55		I
Horse Mountain	3,000	1,591	11/01 - 03/31	C	63,043	0	0			648	48		M
Horse Springs	1,700	945	12/16 - 05/30	S	15,224	0	0			0	38		C
Labeau Flat	3,930	3,199	12/01 - 04/15	C	139,428	0	0			0	37		M
			11/01 - 04/15										
Lahontan	1,155	947	11/01 - 03/31	C	52,910	0	0			504	36	up	M
Mtn. Well- La Plata 6/	8,700	6,860	03/01 - 02/28	C	137,685	62	87	108	190	300	43		M
Phillips Well	1,200	1,250 1/	12/01 - 03/31	C	43,276	0	0			0	38	up	M
Rock Springs	535	535	11/01 - 04/15	C	28,394	0	0			0	46		M
Salt Wells	1,626	1,589	10/15 - 04/15	C	58,611	0	0			0	43		M
Stockton Flat	275	26	11/01 - 03/31	C	9,582	0	0			0	26		C
Truckee-Virginia	1,005	907	11/01 - 03/31	C	21,369	0	0			0	37		C
White Cloud	1,884	1,890 1/	03/01 - 02/28	C	79,663	31	54		50	0	30		M
TOTAL	80,934	64,239			2,455,227	1,546	2,229	108	960	26,280	38		

1/ Includes Temporary Non-Renewable Use.
2/ NDOW, 1983.
3/ Wild Horse Table.
4/ Lahontan Resource Area Utilization Studies. Note: These figures represent allotment wide averages; utilization on specific areas within allotments can vary greatly from this average. Table 1 in Appendix G displays the acreage in each utilization class by allotment.
5/ Lahontan Resource Area Trend Studies.
6/ Although these areas consist of more than one allotment, they are managed as one allotment and were analyzed as one allotment for this document.

Note: Grazing on the New Pass unit of the Mt. Airy allotment is administered by the Battle Mtn. District Office; it has been identified as a Category I allotment and was analyzed in the Shoshone Eureka RMP prepared by the Battle Mtn. District.

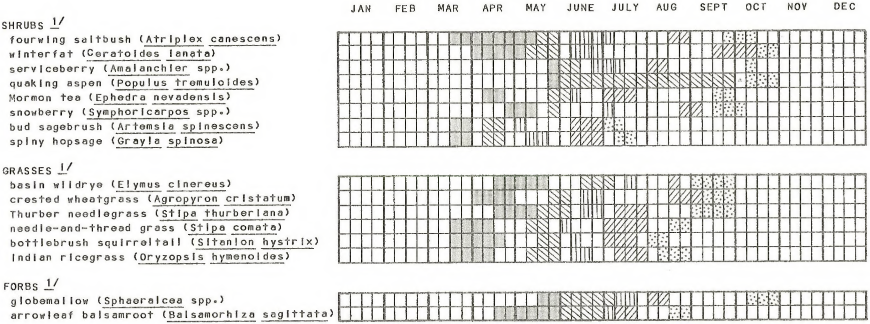
TABLE 3-3
CRITICAL GROWTH PERIODS FOR KEY PLANT SPECIES

	Key Management Species	Critical Growth Period a/
	Grasses	
	basin wildrye (*Elymus cinereus*)	5/1-7/30
	crested wheatgrass (*Agropyron cristatum*)	5/1-6/30
*	bluebunch wheatgrass (*Agropyron spicatum*)	5/1-7/15
	Thurber needlegrass (*Stipa thurberiana*)	5/1-7/15
	needle-and-thread (*Stipa comata*)	5/1-7/15
	bottlebrush squirreltail (*Sitanion hystrix*)	5/1-6/30
	Idaho fescue (*Festuca idahoensis*)	5/15-7/30
	Indian ricegrass (*Oryzopsis hymenoides*)	4/15-7/15
*	Webber ricegrass (*Oryzopsis webberi*)	5/15-7/30
	Forbs	
	tapertip hawksbeard (*Crepis accuminata*)	4/15-6/30
	globemallow (*Sphaeralcea* spp.)	4/15-7/30
	arrowleaf balsamroot (*Balsamorhiza sagittata*)	5/15-6/30
	Shrubs	
	fourwing saltbush (*Atriplex canescens*)	3/15-9/1
	winterfat (*Ceratoides lanata*)	5/1-7/15
	quaking aspen (*Populus tremuloides*)	N/A
*	curlleaf mountain mahogany (*Cercocarpus ledifolius*)	5/1-9/15
	Mormon tea (*Ephedra nevadensis*)	4/20-7/30
	snowberry (*Symphoricarpos* spp.)	5/1-8/15
	bud sagebrush (*Artemisia spinescens*)	3/1-5/30
	spiny hopsage (*Grayia spinosa*)	3/15-5/30

* limited occurrence

a/ Critical growth perods are based on 1976-1979 phenological studies for Nevada, *Ecology* 30(3):298-305; *Agronomy Journal* Vol. 56, No. 1: 80-82; *Farm and Home Science*, March 1964, page 6; *Journal of Range Management* 24(6):414-418 and 418-425, and NRC, Inc. 1976-1979.

Table 3-4
AVERAGE PHENOLOGY OF KEY PLANT SPECIES
LAHONTAN RESOURCE AREA



* District information limited.

KEY

Symbol	Shrubs	Grasses 2/	Forbs
▒	leaf growth	growth starts	growth starts
▧	twig growth	flower stalks appear	flower stalks appear
▥	full bloom	anthesis	full bloom
▨	seed dissemination	seed dissemination	seed dissemination
░	leaves dry/drop	plants dry	plants dry

1/ Certain species, i.e.; curlleaf mountain mahogany, bluebunch wheatgrass, Webber ricegrass and tapertip hawksbeard are limited in occurrence, and have little or no data recorded in the Carson City District.

2/ Regrowth not considered since it is highly variable and dependent upon late summer precipitation.

Source: USDI, Bureau of Land Management, Carson City District, 1983.
NRC, Inc. 1976-1979

throughout the Desatoya Mountains range but are sparsely scattered in the Stillwater and Clan Alpine Mountain Ranges.

An analysis of the wildlife inventory data shows 68 percent of the riparian sites are being damaged by livestock and wild horse use. Heavy grazing at these riparian sites is causing loss of vigor and death of the palatable species. Heavy grazing use and trampling of these species has led to erosion and a corresponding drop in the water table as experienced in the Cherry Valley meadows (see JDR 4418). This has led to less palatable and undesirable species invading the riparian site. Invading species include sagebrush (Artemesia spp.), gray rabbitbrush (Chrysothamnus nauseosus) and iris (Iris missouriensis).

THREATENED AND ENDANGERED PLANTS

No inventory for threatened and endangered plant species has been completed for the RMP area, however the Northern Nevada Native Plant Society has found seven species which have the potential for being listed in the Federal Register as "Threatened or Endangered" (Table 3-5). All but the Tonopah Milk Vetch (As ps), which has been identified at a 4000 acre site in the Gabbs Valley, are found at very small sites.

WILDLIFE

A diversity of animals, over 300 species, is found in the RMP area. Big game species include mule deer, bighorn sheep, and mountain lion. Upland game species include sage grouse, chukar partridge, mourning dove, cottontail rabbits, and whitetailed jackrabbits. Four species of trout including Lahontan cutthroat are found in the area. A variety of raptors nest and winter in the area. The distribution and abundance of the species is influenced by the varied vegetative zones.

Mule Deer

Population

Mule deer populations within the Lahontan RMP area are low in numbers and slowly increasing (Table 3-2). Population estimates averaged 518 deer during the 1977-1981 period (NDOW, 1982). The average harvest for the same period was 57 bucks (Table 3-6).

Habitat Conditions

Key forage species are absent in a large portion of the area. There is competition for forage among grazing animals, particularly in riparian areas in the Stillwater, Clan Alpine, and Desatoya mountain ranges.

Stillwater Range

Mule deer summer range encompasses approximately 20 square miles in the Stillwater Range with the key summer range occurring in the Job Peak-Lincoln Peak area (Wildlife Habitat Map). Yearlong and winter range encompasses an additional 315 square miles. Over 99 percent of this range is in public ownership with only a small area covered by patented mining claims.

Habitat on this range is in marginal condition for mule deer. The extensive pinyon/juniper overstory covering the range shades out most plants of forage value to deer. The topography of this range is steep with many large areas of rimrock; soils are shallow and stony.

Good deer forage is limited. Small areas of snowberry, serviceberry, chokecherry, willow and aspen occur; but ceanothus, bitterbrush and mountain mahogany (key forage species) do not exist. Water is well distributed throughout the deer range.

Clan Alpine Range

On the Clan Alpine range mule deer summer range encompasses approximately 70 square miles, with yearlong and winter range covering an additional 235 square miles. Approximately 99 percent of this range is in public ownership, but portions of key meadow areas in private ownership occur at Cherry Creek, Horse Canyon, and Bench Creek. A key area of deer summer range also occurs in the Cherry Creek area. This is the largest and most important deer range area (Wildlife Habitat Map).

The habitat condition is fair. Much of the range is steep rimrock covered by pinyon pine, however, some snowberry, serviceberry, chokecherry, and aspen occur; but mountain mahogany, ceanothus, and bitterbrush are absent.

TABLE 3-5

POTENTIAL THREATENED AND ENDANGERED PLANT SPECIES
LAHONTAN RESOURCE AREA

	Species (Taxa)	Status[1/]	Category[2/]
Ca ne	*Camissonia nevadensis*	OR	2
Er le	*Erigonum lemmoni*	OR	1
Op pu	*Opuntia pulchella*	W	3C
Or ne	*Oryctes nevadensis*	T	2
As ps	*Astragalus pseudiodanthus*	OR	2
As le se	*Astragalus lentiginosus* var. *sesquimetralis*	T (Nev.)	1
Ph gl	*Phacelia glaberrima*	W	1

1/ Nevada Native Plant Society Designation:

OR - other rare (not considered under threat)

W - Watch (unknown abundance and distribution, threat not defined)

T - Threatened (species likely to become an endangered species within the foreseeable future throughout all or a portion of its range.)

T (Nev.) - Threatened (listed by State of Nevada NRS 527.270)

2/ U.S. Fish and Wildlife Service listing:

1 - Taxa currently under review, data warrants consideration as Threatened or Endangered.

2 - Taxa whose rarity status is insufficiently known - needs more study

3 - Taxa no longer under review
    a. definitely extinct
    b. not a good taxonomic entity
    c. more abundant than previously thought - no current recognizable threat.

Table 3-6
DEER HARVEST AND HUNTING PRESSURE
5-YEAR SUMMARY
STILLWATER CLAN ALPINE AND DESATOYA MOUNTAIN RANGES

Year	Season Type & Length	Total Tags Issued 1/	Total Deer Harvested	Bucks	Antlerless	Total No. Hunters	Hunter Days	No. Hunter Days/Deer	% Hunter Success
1977	Bucks Only 30 days	75	50	50	0	81	259	5.7	68
1978	Bucks Only 30 days	98	47	47	0	126	420	8.9	43
1979	Bucks Only 30 days	92	53	53	0	91	330	6.2	58
1980	Bucks Only 30 days	130	59	59	0	130	427	7.2	46
1981	Bucks Only 30 days	123	74	74	0	124	514	5.8	60
5-Year Average		104	45.6	45.6	0	110	390	6.8	55

1/ Tags issued for general hunt and muzzle loader seasons. Archery tags are issued statewide and not by management area.

Source: NDOW "Input into Land Management Planning Systems, Clan Alpine and Fort Churchill Planning Units", 1980-81; and NDOW "Mule Deer Investigations and Hunting Season Recommendations", 1982.

Mountain meadows in the Cherry Creek area, once in a deteriorated condition, are showing some improvement due to an erosion stabilization program (check dams). Riparian stream habitat remains in poor condition throughout the Clan Alpine mountain range (NDOW 1982; BLM Habitat Inventory, 1981).

Desatoya and New Pass Ranges

Mule deer summer range encompasses 45 square miles, yearlong and winter range accounts for approximately 130 square miles. About 98 percent of the Lahontan RMP area portion of these ranges is in public ownership. A key habitat area occurs on private land in Edwards Creek. No other key habitat areas have been identified (Wildlife Habitat Map).

Pinyon/juniper dominates the lower portion of the mountain between 5,000 and 8,000 feet. Mountain brush dominates the higher elevations with stands of mountain mahogany, aspen, and chokecherry in most major canyons.

Habitat conditions are good in the open range areas, but are fair to poor in the riparian areas.

Bighorn Sheep

The Stillwater Range (Job Peak) received a transplant of 20 Desert Bighorn in July of 1981, and another transplant of 25 in June of 1982. One sighting of ten ewes with nine lambs was made in June, 1983. No other bighorn sheep are found in the planning area (Table 3-2).

Mountain Lion

There is presently an estimated population of twelve lions in the planning area (NDOW, 1982). These lions are found mostly in the Stillwater, Clan Alpine, and Desatoya Mountain Ranges. Transient lions occur throughout the remainder of the planning area. Current populations are believed to be at or near maximum density in the planning area (NDOW, 1982).

The three mountain ranges where the majority of the lion population exists is composed of fair to prime habitat. The remaining habitat of the Lahontan RMP area is considered to be poor (NDOW, 1982).

Chukar

This is the most important game bird in the RMP area as well as the state. Populations of chukar fluctuate greatly according to range and weather conditions. A population turnover of 75 percent is not unusual. Many areas that are presently low density (less than 15 birds per square mile) can be expanded to high density (30 to 50 birds per square mile) after a series of favorable years. There are 827 square miles of chukar habitat in the RMP area with a medium base population of 9,336 birds.

Fair chukar habitat exists throughout the RMP area. The most important single food item for chukar in Nevada is cheatgrass (Bromus tectorum) which invades overgrazed, disturbed, and burned sites (BLM Tech. Supp. 6601-2). Cheatgrass is found throughout the RMP area.

Fisheries

All or parts of Cherry Creek, Edwards Creek, Horse Creek, and Big Den Creek are found on public land. Little or no fisherman days can be attributed to these creeks since access is limited and fish rarely attain sufficient size. Cutthroat trout are found in Edwards Creek. These are either Lahontan Cutthroat trout or the Humboldt strain of cutthroat (the only "threatened" species in the area). Brown and rainbow trout are found in Horse Creek and brook trout are found in Big Den Creek (Wildlife Habitat Map).

Fisheries habitat along Cherry, Edwards, and Horse Creeks are currently in poor condition due to historic grazing use of riparian vegetation (BLM Habitat Inventory, 1981). The headwaters of Edwards Creek and the lower portion of Horse and Cherry Creeks are privately owned.

Forty acres of public land provide access to the Carson River one mile west of Fort Churchill. A diversion structure for irrigation of private lands maintains the fishery by impounding water.

Raptors

Twenty-four species of raptors are found in the RMP area.

Red tailed hawks, prairie falcons, golden eagles and kestrels are the most common nesting raptors

Table 3-7
CHUKAR POPULATION ESTIMATES*

Density	Square Miles	Birds/Sq. Mi.	Total
High	0	40	0
Medium	181.2	23	4,168
Low	645.9	8	5,168
Total	827.1		9,336

* The figures presented above represent a long-term average base population, and populations from year to year can fluctuate broadly, with populations higher on good years being two to three times the average, and population lows on poor years being half the average.

CHUKAR HARVEST AND HUNTING PRESSURE 1/
105 QUESTIONNAIRE DATA

Year	Season Length and Bag Limit		Total Birds Harvested	Total No. Hunters	Hunter/ Days	Birds/ Hunter	Birds/ Hunter-Day
1976	122	5/10	687	352	536	1.3	1.3
1977	79	5/10	765	260	469	2.9	1.6
1978	117	5/10	1,145	416	1,061	2.6	1.0
1979	111	6/12	5,353	820	2,293	6.5	2.3
1980	121	8/16	4,540	565	2,660	8.0	1.7
1981	81	7/14	739	325	873	2.3	0.8
AVERAGE:			4,032		1,315		

1/ Estimate for planning area (100% Churchill Co./ 5% Lyon Co.)

Source: NDOW "Input Into Land Management Planning Systems, Clan Alpine and Fort Churchill Planning Units", 1980-81.

in the area. Occasional raptor nesting sites can be found in the riparian zones when aspens or cottonwoods are present. Bald eagles (endangered species) are predominantly a winter visitor on public lands in the area. Bald eagle activity is concentrated on private or other agency lands in the wetland areas surrounding Lahontan Reservoir, Stillwater Wildlife Management Area, Carson Lake, and the Carson River. Concentrations of American roughlegged hawks winter in the valley areas.

Nongame Birds

There are more than 150 nongame bird species represented in the RMP area. Their distribution is areawide, since every vegetation type or its variations provide habitat for at least one species. The most productive of the small vegetation types/habitats is an aspen overstory with grass/grass-like/forb understory, surrounded by sagebrush or sagebrush with scattered pinyon and juniper. Forty-nine species of birds were documented in this habitat type in 1978 and 1979 inventories. The second most productive habitat is an aspen overstory with a rose/willow understory, with 46 species of nongame birds inventoried. The third largest number of nongame bird species was recorded in curlleaf mountain mahogany types.

The key element here is structural diversity of vegetation. Structural diversity such as shrubs and short and tall trees (as in the case of aspen and cottonwood groves, and willows) attracts many more bird species than vegetation lacking in structural diversity, such as a stand of big or low sagebrush (Thomas, 1980).

Water is also a key habitat component. A dry willow/rose site surrounded by big sagebrush supported only four bird species, while the same type of site with surface water supported 24 species. This difference was also noted in a sedge/grass site surrounded by pinyon and juniper; the wet type had 32 species, the dry site had none (Thomas, 1979).

Sage Grouse

Sage grouse are found in the Clan Alpine and Desatoya Mountain ranges. Small populations existed in the Stillwater Range but have been lost to poaching (Kent, 1983). The population in the RMP area is estimated at 425 birds. Although hunting limits are set by NDOW and hunting has been closed three out of the last six years. The sage grouse population appears to be declining throughout the RMP area.

Sage grouse rely on sites with good to excellent ecological conditions, and depend on sagebrush (Artemsia spp.) for cover and food. A good balance of grasses, forbs, and riparian species is also needed (BLM Manual Tech. Supp. 6601-3: Oakleaf, 1971).

The Clan Alpine Range, until recently, had a large population of sage grouse in the Cherry Creek Meadows-War Canyon area and associated habitat between Mount Grant and Mount Augusta. This population has declined sharply in the last two years. Many range and meadow areas are degraded from excessive grazing (NDOW 1982; BLM Habitat Inventory).

A fringe of sage grouse habitat exists along the top of the Desatoya range with known strutting grounds near Cold Springs. Most sage grouse habitat supporting this population occurs on the Lander County side of the range, outside the RMP area. The meadow areas on this range are severely depleted from grazing (NDOW, 1982).

WILD HORSES

The Lahontan RMP area contains all or portions of ten Wild Horse Herd Areas (Wild Horse Areas Map). In one area, the Horse Springs Herd Area, the wild horses have been totally removed and the area has been declared free of wild horses. The reasons for total removal were to implement a 1976 MFP III decision, and to satisfy a request by the landowner of the alternate sections to remove the wild horses from his private land. The estimated populations within the planning area in the other nine herd areas are as follows. These estimates are based on the most recent censuses.

Herd Area	Estimated Population
Lahontan	42
Horse Mountain	63
Pinenuts	trace
South Stillwaters	25
North Stillwaters	30
Augusta Mountains	145
Clan Alpines	1750
Desatoya Mountains	135
Sherman Peak	trace

Two areas have had Interim Herd Management Area Plans (HMAPs) prepared for them. The Horse Mountain interim plan was approved in 1977. The major emphasis of this plan was on removing wild horses to maintain an interim level of 27 head. Partial implementation was begun, with eight head being removed in 1978.

The other interim plan was prepared in 1980 for the Clan Alpine Herd Area. The emphasis of this plan was establishment of an interim population level. This plan suggested reducing the wild horse population to 350, allowing this to increase to 550 and then reducing again. This plan has been partially implemented. During the winter of 1980-1981, 565 head were removed. The following winter of 1981-1982, 663 head were removed, leaving the estimated level of 1750 horses.

Water is limited for wild horses throughout the RMP area, particularly in the Horse Mountain Herd Area where the only known water source is the Truckee-Carson Irrigation District ditch.

Dietary overlap of forage species occurs between wild horses and livestock, and to some extent between wild horses and wildlife. In some areas of the Clan Alpine, Desatoya Mountains, and Augusta Mountains Wild Horse Herd Use Areas, the combined number of animals are competing for the available forage and thus are causing a decline in desirable forage species. This is lowering the quality of the wild horse habitat.

VISUAL RESOURCE MANAGEMENT

The Lahontan RA has some areas that are highly regarded for their scenic quality. The Stillwater, Clan Alpine, New Pass and Desatoya mountain ranges, Sand Mountain, and the Carson River all would rank as "above average" or Class B scenery. The southern portion of the Desatoyas containing Rock Creek Canyon, Willow Creek Canyon, Big and Little Den Canyons, as well as Deep Canyon in the Clan Alpine Mountains would all be considered "outstanding" or Class A scenery. The rest of the area is "common" or Class C scenery.

CULTURAL RESOURCES

Prehistoric and historic sites may be found throughout the RMP area. These sites represent human occupation and development over the past 8000 years. Prehistoric sites are of the following types: lithic scatters, rock rings, wickiups, rock shelters, caves, petroglyph and pictograph sites, rock alignments, and quarries. Historic sites include old mining towns and sites, the Pony Express trail, Transcontinental Telegraph, Overland Stage Stations, and old ranching structures. Intangible cultural resources include Job Peak which has religious significance to local Native Americans.

The most visible and important prehistoric sites are contained within the Grimes Point/Hidden Cave Archaeological Area. The other cultural sites on public land have continuing scientific value in situ and are protected from public knowledge, use, and abuse. There are over two thousand known sites in the Lahontan RMP area, and the potential exists for thousands more. Only a small portion of the area has been inventoried for cultural resources.

RECREATION

The major forms of recreation on public lands in the Lahontan RMP area are hunting, cultural resource interpretive sightseeing, off-road vehicle (ORV) use, and backcountry recreation.

A large portion of the area has been inventoried under the Recreation Opportunity Spectrum (ROS) system. This system classifies land as to type of recreation opportunities that are present. These range across a spectrum from primitive to urban as shown below:

Primitive ⟷ Semi Primitive Non-Motorized ⟷
Semi Primitive Motorized ⟷ Roaded Natural
⟷ Rural ⟷ Urban

Outdoor recreation opportunities in the RMP area range from primitive to rural. There are no urban lands managed by the Bureau in the RMP area (BLM Manual 8320).

Hunting occurs primarily in the mountainous areas during the fall months. Most of these areas lie within the Stillwater, Job Peak, Clan Alpine and Desatoya Mountains WSAs. Hunting is conducted primarily for mule deer, upland game birds, and small game species. Total hunter days spent on public land in the Lahontan area in an average year, based on the 1977-1981 survey are, mule deer - 390 hunter days/year, sage grouse - 100 hunter days/year, and chukar partridge - 1471 hunter days/year, for a total of 1961 hunter days/year (NDOW, 1982).

Off-road vehicle use occurs primarily at the Sand Mountain Recreation Area, and to a smaller degree in the Desert Mountain ORV area, and the Frontier 500 ORV corridor. None of these sites are near or within BLM's WSAs, although they all fall within active grazing allotments. The majority of ORV use occurs in the spring and fall months when the weather is mild. Off-Road use at Sand Mountain totaled 15,993 visits for 1981. An additional average of 4309 visitor days/year occurs from organized competitive ORV events, and an estimated 2200 visitor days/year of random ORV use in other areas. Total average ORV use for the Lahontan RMP area is 25,499 visits/year (Appendix H).

Cultural resource interpretation occurs primarily at the Grimes Point/Hidden Cave Archaeological Area. These sites had a total of 7830 visits in 1981.

Historic interpretive facilities are also provided at Cold Springs and Sand Springs Pony Express Stations. Use is low, however, averaging around 600-700 visits/year.

Other general recreational activities which take place in the Lahontan RMP area include hiking, camping, picnicking, horseback riding, rockhounding, photography, and historic sightseeing. It is estimated that 2951 visitor days/year are spent in backcountry recreational activities.

The majority of these back country recreational types of uses occur within or near WSAs. Other uses are generally well dispersed throughout the area or around historic mining towns and districts such as Wonder, Rawhide, Fairview, Coppereid, and Dixie.

LIVESTOCK GRAZING

The Lahontan RMP area has a total of 80,934 AUMs of adjudicated grazing preference distributed over 30 allotments (Allotment Boundary Map; Table 3-2). Grazing privileges were originally awarded to livestock operators in accordance with the Taylor Grazing Act of 1934; this was followed in 1964 by an adjudication based on a range survey. The three-year average of authorized use taken from 1979 to 1981 totals 64,239 AUMs. This represents 79 percent of the total grazing preference.

There are 27 livestock permittees licensed in the Lahontan RMP area; 26 are currently in active operation. Twenty-four of these are cattle operators and two are sheep operators. Eighteen allotments are used primarily as winter range. Seven allotments have year-round grazing, and four allotments are used primarily during the summer months. One allotment (Dead Horse Well) has not been licensed for grazing.

There are two allotments managed under allotment management plans (AMPs), Eastgate and Mountain Well, which have a combined size of 543,470 acres, or about 22 percent of the RMP area. The Eastgate allotment is composed of seven pastures: four summer pastures that are grazed on a combined deferred and rest rotation system, and three winter pastures that are grazed custodially. The Mountain Well AMP has a five pasture grazing system.

There are 28 allotments that are not managed with an AMP. They comprise 1,911,739 acres or about 78 percent of the RMP area. They range in size from 4,328 to 296,791 acres, and generally have some fencing used in conjunction with natural boundaries. Some of these allotments have inter-allotment livestock drift and poor distribution patterns due to a lack of adequate water and sufficient fencing. Dietary overlap of forage species with wild horses and continuous early spring use by grazing animals have led to specific areas of overuse on approximately one-fourth of the allotments within the RMP area (Table 3-8).

TABLE 3-8
ALLOTMENT MANAGEMENT PROBLEMS

ALLOTMENT	PROBLEM[1]				
	1	2	3	4	5
Adriance Valley				X	
Bass Flat					
Bell Flat					
Boyer Ranch					
Bucky O'Neill					
Churchill Butte					
Clan Alpine	X	X	X	X	X
Cleaver Peak					
Clifton Flat					
Copper Kettle	X	X		X	
Cow Canyon	X		X		X
Dead Horse Well					
Desert Mountain					
Dixie Valley		X	X	X	X
Eastgate (AMP)	X	X	X		X
Edwards Creek	X		X	X	X
Frenchman Flat					
Fort Churchill					
Hole in the Wall	X	X	X	X	X
Horse Mountain			X		
Horse Springs					
LaBeau Flat					
Lahontan			X		
Mtn. Well - La Plata (AMP)					X
Phillips Well	X				
Rock Springs					
Salt Wells					
Stockton Flat					
Truckee-Virginia					
White Cloud					
TOTAL	7	5	8	6	7

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[1]
1. livestock drift
2. livestock distribution
3. competition for forage with wild horses
4. improper period-of-use
5. specific areas of overutilization

Note: That portion of the New Pass unit of the Mt. Airy allotment (Battle Mtn. Dist.) within the Lahontan RMP area (4328 acres) has not been included due to lack of data. The Mt. Airy allotment was analyzed in the Shoshone-Eureka RMP prepared by the Battle Mountain District.

GEOLOGY, ENERGY AND MINERALS

Geology

The Lahontan RMP area is located in the western Great Basin of the Basin and Range physiographic province. The area typifies this province by the characteristic north-northeast trending linear mountain ranges and intervening valleys. Elevations range from 3400 feet to 10,000 feet above sea level. A description of existing structural geology and rock units can be found in Appendix I.

Mineral Resources

Metallic Minerals

Gold, silver, antimony, tungsten, copper, iron, lead, zinc and mercury have been produced from the more than thirty mining districts in the RMP area. Mineral deposit types found in the area include copper bearing contact metamorphic deposits, mineralized explosion breccias, epithermal base and precious metal-bearing quartz veins, molybdenite porphyry, hydrothermal tungsten, tungsten-mercury deposits and strata-bound volcanogenic deposits.

Of economic interest gold, silver, and iron rank highest. The only current production of metallic minerals of any significance comes from the Fisk-Robertson gold mining operation in Fondaway Canyon in the Stillwater Range. The Stillwater Range is considered one of the more favorable environments for the occurrence of metallic minerals found within the Basin and Range province (USDI, BLM, Great Basin GEM 1983). Precious metal exploration is active in the area and accounts for approximately 50 operating plans per year. Approximately 10,000 mining claims, located for metallic and locatable nonmetallic minerals are recorded in the area.

Nonmetallic Minerals

Sand, gravel, diatomite, pumice, perlite, salt, stone, limestone, fluorspar, gem stones, borates, magnesite, and clays have been produced within the area. Sand, gravel, diatomite, limestone, salt, and magnesite are the commodities of most commercial value. The BLM administers six community pits/common use areas for disposal of common variety minerals. Exploration and development under the Mineral Leasing Act for sodium minerals is active in the Carson Sink.

Energy Minerals

Approximately 500,000 acres of public land are leased for geothermal resources, and close to 1,000,000 acres for oil and gas.

Geothermal resources are the only energy minerals known to occur within the RMP area. There is prospective value for oil and gas within the large alluvial basins. Economic deposits of coal, uranium, oil shale, tar sands, or other energy minerals are not known to occur within the area.

Exploration and development of geothermal resources has taken place over the past ten years and continues to date. The most promising prospect is located in northern Dixie Valley where Sun Energy Development Co. is working toward production of electric power.

A tabulation of mineral leases, mining claims, and mineral favorability for lands found within the WSAs can be found in Appendix I, Table 1.

FORESTRY

All forested lands in the Lahontan RMP area are classified non-commercial. There are presently 218,000 acres of productive pinyon/juniper woodland in the Lahontan RMP area, based on the BLM forest inventory of ten percent or greater pinyon/juniper canopy cover. This does not necessarily correlate to the woodland sites identified in the vegetation section, which are based on soil characteristics. This woodland acreage is located primarily in the Clan Alpine, Stillwater, Desatoya, and New Pass mountain ranges.

Forest species other than pinyon/juniper that may be found in the area include scattered mountain mahogany, quaking aspen, and cottonwood stands. None of these species are located in enough quantity or have enough accessibility to be considered for harvest.

At present there is one greenwood firewood cutting unit in the RMP area. This unit is located at Camp Creek in the Clan Alpine

Mountains and currently is being harvested at a rate of 520 cords/year. This area has been open for cutting since 1975 and still has several years left before closure will be considered. If new roads are opened into the area, the unit's lifespan could lengthen considerably.

Within the total RMP area there are 37,016 acres of harvestable pinyon/juniper at various stages of maturity (BLM Woodland Forest Inventory, 1978-81). At present harvest levels there is no danger of demand exceeding supply. The annual allowable cut for the Lahontan RMP area is estimated to be 1234 cords/year.

Of the 218,000 acres of productive pinyon/juniper woodlands found in the area about 120,000 acres or 56 percent are presently located within WSAs. Approximately 13,000 acres of this amount are potentially harvestable (BLM Woodland Forest Inventory, 1978-81).

WILDERNESS

Section 603 of the Federal Land Policy and Management Act (FLPMA) directed the Bureau to review its roadless areas of 5,000 acres or more for their wilderness potential. Those areas having wilderness characteristics as defined in the Wilderness Act of 1964 were to be studied to determine their suitability or nonsuitability for preservation as wilderness (Appendix J). The inventory process has been completed for the Lahontan Resource Area and four WSAs totaling 432,206 acres (15.3 percent of the public land) have been designated (Wilderness Areas Map).

Table 3-9 displays resources and characteristics of the four WSAs. The Lahontan Resource Area Wilderness Technical Report (USDI, BLM, 1983) provides more detail about wilderness and other resource values found in each WSA.

Characteristics Common to All Four WSAs

According to the Bailey-Kuchler system of ecosystem classification, all four WSAs lie within the Pinyon/Juniper Woodland and Great Basin Sagebrush ecosystems. In addition, the Job Peak and Stillwater Range WSAs have representation of the Saltbush/Greasewood ecosystem. Relatively small areas of mountain mahogany are found in the Clan Alpine Mountains and Desatoya Mountains WSAs, thereby providing limited representation of the Mountain Mahogany/Oak Scrub ecosystem.

All four ecosystem categories are currently under-represented in the Natural Wilderness Preservation System (NWPS). The Great Basin sagebrush ecosystem is well represented in areas that are administratively endorsed for wilderness designation, however, the other three ecosystems are not. Many of the other WSAs being studied by the BLM in Nevada and adjoining states of Oregon and Utah fit within these ecosystem categories. The exception is the Mountain Mahogany/Oak Scrub ecosystem; the limited mountain mahogany acreage found in the two Lahontan Resource Area WSAs is the only identified acreage within this ecosystem in the nation.

Two major population centers, Reno, Nevada and Sacramento, California, lie within five hours driving time of all four WSAs. The Jarbidge Wilderness Area in northeastern Nevada is the only designated wilderness area in the state. Four areas (190,410 acres) administratively endorsed for designation as wilderness are found in western and west-central Nevada. Except for these four areas, geographic distribution of statutory wilderness and administratively endorsed areas is heavily skewed toward California and the Sierra Nevada where ecosystem and landform types are, in general, considerably different than those found in the Lahontan Resource Area WSAs.

Since 1968, the Fallon Naval Air Station (NAS) has conducted air warfare training in the airspace over the four WSAs. Restricted airspace blankets much of the Job Peak, Stillwater, and Clan Alpine WSAs, and a small portion of the Desatoyas WSA. Airspace over all of the WSAs is within the Gabbs Military Operating Area (MOA). Overflights of these areas are frequently low-level and always at high speeds. Operations take place primarily during daylight hours and most frequently occur around Dixie Valley, located between the Clan Alpine and Stillwater mountain ranges. The impacts of these operations affect the solitude in these WSAs, however, these impacts tend to be localized, infrequent, and of short duration.

Livestock grazing takes place in all four units and is a valid existing right.

TABLE 3-9
WSA RESOURCES AND CHARACTERISTICS FOR THE LAHONTAN RESOURCE AREA

	Clan Alpines	Stillwater Range	Desatoyas	Job Peak
Acres	196,128	94,607	51,262	90,209
Existing Visitor Days 1/	2,026	520	1,241	578
Special Features				
Ecological	X		X	X
Geological	X	X	X	X
Scenic	X	X	X	X
Cultural Resources 2/				
Aboriginal	X	X	X	X
Historic		X	X	
Scientific & Educational Values				
Wild Horses 3/	800-900	10-15	100-125	15-20
Other	X	X	X	X
Energy & Minerals				
Mining Claims				
Number	451	592	0	235
Acres	9,020	11,840	0	4,700
Geothermal Leases				
Number	6	15	0	16
Acres	5,800	11,000	0	15,200
Oil & Gas Leases				
Number	69	17	4	7
Acres	118,000	18,000	2,100	9,800
Woodland Products				
Harvestable Acres	10,850	0	2,240	0
Livestock Management				
Permittees 4/	3	4	3	4
AUMs	5,334	2,035	2,215	4,860
Rights-of-Way				
Existing	1	0	0	0
Application	2	1	1	1
Withdrawal Application	0	0	0	1

1/ Estimated by the Lahontan Area Outdoor Recreation Planner and Lahontan Area Wilderness Specialist.

2/ Statistical projections infeasible; indicates whether or not resource is an important feature in area.

3/ Estimated by District Wild Horse & Burro Specialist.

4/ There is a total of nine permittees utilizing the four WSAs. Some permittees graze cattle in more than one of the study areas.

Source: Bureau of Land Management, Carson City District, 1983.

Clan Alpine Mountains WSA

The 196,128 acre Clan Alpine Mountains WSA is about thirty miles long and ranges from seven to fifteen miles wide. With the exception of Railroad Ridge, most of the northern and central portion of the Clan Alpine mountain range is included in the WSA. The majority of the WSA is mountainous while the remaining areas are foothills and alluvial fans. Elevation of the area ranges from 3600 feet in Dixie Valley to 9966 feet at the top of Mount Augusta. Access is provided by three major boundary roads and several cherrystem roads.

The area is generally free from human imprints and is in a natural state. The following imprints are substantially unnoticeable in the study area as a whole: thirteen developed springs, one reservoir and one well, one pipeline three miles in length and two other pipelines each less than 200 yards in length, and nine miles of fenceline. All of these imprints are the result of livestock grazing operations.

There are 39 miles of ways divided among 35 separate segments within the WSA. Most of these ways are relatively short, are found around the periphery of the WSA, and extend into the interior from the boundary. Fourteen cherrystem roads penetrate the WSA from each side except the extreme northeastern portion of the area. The Camp Creek woodcutting area lies at the extreme south end of the WSA.

The majority of the unit contains outstanding opportunities for solitude. The configuration of the WSA presents some difficulties due to three peninsula-like intrusions associated with mining activity outside the WSA and several cherrystem roads which penetrate the interior of the WSA. However, these intrusions are widely scattered. The area's large size, combined with its extreme topographic relief and relatively dense pinyon/juniper cover throughout the majority of the unit, offers excellent screening and numerous opportunities for a visitor to find a secluded spot. Only along the alluvial fans on either side of the WSA would it be difficult to attain a feeling of solitude.

Recreation opportunities present in the area are diverse and of high quality. Activities include day hiking, backpacking, horseback riding, camping, sightseeing/photography, cross country skiing, hunting, and nature study. Five perennial and several intermittent streams are found within the WSA. There are numerous colorful geologic formations and a good variety of animals, including mountain lions and several species of raptors. Approximately 800-900 wild horses are found in the WSA. These factors combine to offer outstanding opportunities for primitive and unconfined recreation within the WSA.

Limited archaeological investigation has taken place inside the WSA. Indications are the area may be valuable from a cultural standpoint.

Potential manageability problems involve both visitor and resource management issues. These difficulties include: vehicular access and ORV use; possible concentrated trailhead use; ways and cherrystem roads which extend into the heart of the area; configuration problems due to peninsula-like, non-WSA intrusions; boundary adjustments which rely heavily on legal descriptions; Fallon NAS radar site and supersonic operating area proposals; and potential energy and mineral exploration.

Stillwater Range WSA

The 94,607 acre Stillwater Range WSA is about sixteen miles long, nine to eleven miles wide, and includes roughly the central third of the Stillwater Range. The central portion of the WSA is generally mountainous with alluvial fans extending out to the boundaries on both the east and west sides. Elevation of the area ranges from approximately 3400 feet in Dixie Valley to 7615 feet at the top of Eagle Peak. Good access is provided by the east and west boundary roads.

The northern portion of the unit and the alluvial fans, particularly on the west side, contain a substantial number of human imprints which negatively affect the wilderness character of the area. The south-central part of the unit is generally free from human imprints and is in a natural state.

In the northwest corner of the WSA, over five miles of ways crisscross the alluvial fan and are associated with past mining activity. The northeast has been impacted by past mining activity around Eagle Mountain. Several old adits, small areas of surface disturbance, and three miles of ways are found there. Fifteen cherrystem roads and 11 ways are found in the area, most of them providing access to past or current mineral exploration activity. Three miles of fenceline and one well are substantially unnoticeable in the WSA as a whole. Two areas of private inholdings totaling 620 acres exist within the unit, neither of which currently has a means of access.

Grandfathered mining activities have expanded their areas of operation since the intensive inventory was completed, particularly around Fondaway, Alameda, Wood, and Mill Canyons. This expansion has been greatest in Fondaway and Wood Canyons.

The central mountainous portion of the WSA remains in an essentially natural condition. Opportunities for solitude vary considerably within the WSA. The alluvial fans provide no topographic and only minimal vegetative screening. The lower reaches of the mountainous terrain consist of moderately dissected canyons with only limited vegetative screening. Solitude opportunities are good to excellent in the central, mountainous portion of the range, particularly north of Fondaway Canyon where the single ridgeline to the south spreads out into a more highly dissected configuration. Pinyon/juniper associations predominate in this area.

Recreational opportunities are not diverse, are of moderate quality, and are primarily limited to the central portion of the WSA. There are few points of interest which would attract a visitor. Water is scarce and a visitor would find it difficult to avoid the impacts of human activity should he stray from the central core of the area. There are no perennial streams in the WSA. Backpacking, horseback riding, hunting, and sightseeing opportunities are present, but cannot be termed outstanding. The 1954 earthquake fault on the east side of the WSA and the sites of the old Shady Run, Dixie, and Coppereld mining camps would be of interest to visitors to the area.

Several problems exist with regard to managing portions of the Stillwater Range WSA as wilderness. The number and location of roads and ways on the west side of the WSA, combined with ongoing mining activity in this area, creates a difficult manageability situation along the alluvial fan and in the lower reaches of the mountain range itself. The cherrystem road, three miles of ways, and general configuration of the northeast corner of the WSA would make effective management of this area difficult also. Two private inholdings pose substantial manageability problems in the northern part of the area. A proposed Naval radar site and implementation of a Supersonic Operating Area may present management difficulties in the future. Geothermal exploration could take place along the east side of the WSA. Offroad vehicle use would be difficult to control along any of the alluvial fans, but particularly in the far southwest portions of the area.

Although the central portion of the study area has few manageability problems by itself, boundaries would be hard to locate on the ground.

Desatoya Mountains WSA

The 51,262 acre Desatoya Mountains WSA is seventeen miles long, ranges from four to six miles wide, and includes the west-central portion of the mountain range. Except for the extreme northern end of the WSA, the unit is mountainous in character. Elevations range from 5400 feet along the fan on the far north end of the WSA to 9973 feet at the top of Desatoya Peak, the highest peak in Churchill County. The northern and southern boundary roads as well as smaller dirt roads just outside the western boundary provide good access to the WSA.

The area is generally free from human imprints and remains in an exceptionally natural state. There are no mining claims in the study area.

The following imprints are substantially unnoticeable in the WSA as a whole: two spring developments, four miles of fenceline, and one small line shack. All of these imprints are the result of livestock grazing operations.

Roughly eight miles of ways divided among twelve separate segments are located within the WSA. The majority of these are in poor condition. Most of them are found along the boundaries and extend one mile or less into the WSA. Thirteen separate road segments penetrate the WSA from the east and west sides. Of these, the total length of twelve of the thirteen is just over seven miles. The 4.8 mile long Topia Creek road has an impact on the area's apparent naturalness, but only in its upper reaches where the rolling landscape and sparse vegetation do not provide screening. There are 120 acres of private inholdings which already have a means of access.

Outstanding solitude is attainable throughout the WSA, especially west of the main ridgeline. The west side is characterized by deep confined canyons, many of them with steep cliffs and rock outcrops which open into small basins at the higher elevations. Most of these are lined with aspen, willow, wild rose, Indian paintbrush, ferns, various small cacti, and other wildflowers. Isolated stands of mountain mahogany combine with a general pinyon/juniper cover on the steep hillsides away from the drainages to provide excellent topographic and vegetative screening. East of the main ridgeline the topography is more rolling and not as highly dissected, however, topographic screening is still good due to the large number of drainages in the area. Riparian areas are also present and provide good vegetative screening. The main ridge itself and the higher elevations on both sides of it from Carroll Summit to Topia Creek are covered with grasses and low growing shrub species. Scattered stands of pinyon pine and juniper are found at the lower elevations. North of Topia Creek pinyon/juniper associations predominate in relatively thick stands.

Unlike the airspace over the other three study areas, very little of the airspace over the Desatoya Mountains WSA is restricted. The WSA is situated roughly fifteen miles east of Dixie Valley, the main corridor used by naval aircraft during their training missions. Consequently, impacts of this activity upon solitude are less than in the other three WSAs.

In general, a visitor to the area would have little difficulty locating a secluded spot and would have many opportunities to experience a feeling of outstanding solitude.

Outstanding primitive recreation opportunities are available within the WSA. They are diverse and of high quality. Activities include day hiking, backpacking, horseback riding, camping, hunting, cross country skiing, vegetation collection, nature study, and sightseeing/photography. Eleven perennial and several intermittent streams are found in the WSA. Riparian areas support complex plant communities. The study area is of excellent scenic quality and there are numerous points of interest which would attract a visitor. Big Den Canyon is exceptionally scenic and is well known locally. A large variety of animals, including mountain lion, mule deer, gray fox, golden eagles, and pika can be found in the WSA.

The special features of the study area are both diverse and important. Several complex ecologic relationships are present, as well as a wide variety of plant and animal species. Weathering of the volcanic rocks in the WSA has created areas of beauty and geologic interest. A Pony Express station is located just outside the WSA boundary, and the ruins of an Overland Stage station are found along Edwards Creek. A pictograph site and Topia Cave, a significant archaeological site probably associated with periods of hunting and pine nut gathering, are found along the Topia Creek drainage.

There are relatively few manageability problems associated with this WSA. Off-road vehicle use may be hard to control along the east side of the area, primarily during hunting season. Trespass firewood cutting could occur along the boundaries, especially in the southwest part of the unit.

Job Peak WSA

The 90,209 acre Job Peak WSA varies from five to sixteen miles long and five to fifteen miles wide. It includes roughly the southern quarter of the Stillwater Range. The east-central portion of the WSA is quite rugged and mountainous, while the west-central part of the WSA is more rolling and not as heavily vegetated. Alluvial fans flank the WSA on both the east and west boundaries. This study area's elevation ranges from approximately 3600 feet at the eastern boundary in Dixie Valley to 8785 feet at the top of Job Peak, the highest peak in the Stillwater Range. Access is provided by both the east and west boundary roads.

The northwest portion of the unit contains a substantial number of human imprints. These include parts of five cherrystem roads, seven miles of pipeline, six miles of fencelines, seven miles of ways, two borrow pits, three cabins, and a small area of historic mining activity.

The southwest part of the WSA contains five miles of cherrystem roads, a two mile pipeline, a one-half mile long way, a cabin and corral, and a dozen small spring developments. However, they are substantially unnoticeable in the WSA as a whole. East of the main ridgeline the WSA remains in an essentially natural condition, both in the mountains and on the alluvial fan.

Solitude opportunities vary considerably within the WSA. The alluvial fans provide no topographic and minimal vegetative screening. Those areas west of the main ridgeline and south of East Lee Canyon are similar to each other in that their convoluted landscapes provide relatively good topographic screening, yet vegetative screening is minimal. In the deeply incised canyons covered with thick stands of pinyon pine and juniper on the east side of the main ridgeline, both topographic and vegetative screening combine to provide outstanding opportunities for solitude.

Recreational opportunities are fairly diverse and of good quality. Activities include day hiking, backpacking, camping, horseback riding, rock climbing, and sightseeing/photography. These recreational opportunities are primarily found along the east side of the mountain range between the northern boundary and East Lee Canyon. The terrain is more rugged and scenic here than in the remainder of the unit, and while many of these activities may be pursued elsewhere in the WSA, their quality is best on the east side of the WSA.

Six small aboriginal sites have been identified inside the WSA. The earthquake fault of 1954, which runs along the base of the mountain range on the east side of the study area, would be of interest to visitors to the area. The herd of Desert Bighorn sheep which have recently been reintroduced to the area constitute another special feature of significance.

Several problems exist for managing the Job Peak WSA as wilderness. The northwest portion of the area is impacted by several roads and there is sporadic but continued interest in the mineral values of the area. Other cherrystem roads provide vehicular access deep into the interior of the WSA. The alluvial fans are susceptible to uncontrolled ORV use. The fan in the southeast quarter of the area is overlaid by both geothermal and oil and gas leases, and some exploration has already occurred. In addition, the Navy has applied for withdrawal of over 23,000 acres of land in this area. The northeast part of this unit, from the northern boundary south to East Lee Canyon and east of the main ridge line down to the alluvial fan, has few manageability problems.

LANDS

The public lands in the Lahontan RMP area are distributed through five western Nevada counties: Lyon, Churchill, Nye, Storey, and Mineral. One of the major communities in Lyon County within the RMP area is Silver Springs. It is a small residential community located at the crossroads of U.S. Highway 50 and Alt. 95, on the west shore of Lahontan Reservoir. Public lands south of Silver Springs are predominately blocked up. Those to the north are mainly in a checkerboard pattern resulting from railroad grants in the late nineteenth century. Lands immediately surrounding Silver Springs are predominately private. Some checkerboard Bureau of Reclamation administered lands surround Lahontan Reservoir.

At the northern edge of Lyon County is the town of Fernley. Located at the junction of Interstate 80 and Alt. 95, it is a community mainly servicing local ranching needs, although in recent years it has become somewhat of a bedroom community for Reno/Sparks. Federal lands surrounding Fernley are in a checkerboard pattern, those parcels to the south of Fernley being administered by BLM and those to the east being administered by the Bureau of Reclamation in support of the Truckee Canal system.

The Churchill County seat is located at Fallon. Fallon is a service oriented town for the surrounding ranching and farming interests, and the nearby Fallon Naval Air Station.

The population of Churchill County was 13,900 in 1980. Lands surrounding Fallon are mainly irrigated agricultural lands used for the production of alfalfa grains, corn, and truck crops. The agricultural development is supported by the Bureau of Reclamation's Newlands project and is administered by the Truckee-Carson Irrigation District. Hence, most of the federal lands in the western half of the county are Bureau of Reclamation withdrawn lands. Some of these lands are also designated federal wildlife refuges and state wildlife management areas.

The Naval air operations facilities consist of the air station at Fallon, three live bombing ranges, and numerous permits and rights-of-way for support activities. Expansion of these facilities and subsequent withdrawal of additional public lands is now being considered by the Navy.

Ranching predominates in the eastern half of the county with some limited agricultural development in Dixie and Edwards Creek Valleys. There is scattered mining in the area and geothermal resource exploration in Dixie Valley.

In the southeast corner of the RMP area is the town of Gabbs in Nye County. Basic Refractories, a magnesite mining and processing operation is located here. It is the primary economic support for the town.

The portion of Mineral County within the RMP area is open range land with no population centers. Most of the eastern half of the planning unit is public lands.

There has been some pressure on federal lands for agricultural development under the Desert Land Act and the Carey Act. This has occurred in both Dixie and Edwards Creek Valleys. There appears to be available water in Edwards Creek Valley to allow some additional farming, but all available agricultural water in Dixie Valley is currently being utilized.

ECONOMIC CONDITIONS

The Lahontan RMP area consists of most of Churchill County and small parts of Lyon, Nye, Mineral and Storey Counties. Since economic data is generally available only on a countywide basis and the vast majority of the acreage is located in Churchill County, this analysis will be focused there.

Population

With the exception of northern Lyon County, this area has grown at a more stable rate than the rest of Nevada (Table 3-10). The area is primarily rural with a population density of 3.4 per square mile. Most of the population is located in the Lahontan Valley around Fallon (pop. 4300).

Economic Structure

Churchill County's per capita income at $8400 is well below both the state ($10,700) and national ($9,500) levels (U.S. Bureau of Economic Analysis, 1982). The April, 1983 unemployment rate of 13.6 percent was well above the state and national rate of 10.2 percent, indicating that the recession has hit particularly hard in Churchill County.

An input-output (I-0) model of Churchill County's economic structure has been constructed for this analysis from secondary data (Appendix K). The model is based on an interindustry transaction analysis of the flow of commodities from each of Churchill County's producing sectors to all consuming sectors, both intermediate and final. The I-0 model is used to develop multipliers for each sector. The higher the multiplier, the greater the interaction of that sector with the County economy. Those sectors with the highest multipliers for Churchill County are social services, tourism, and livestock.

The largest sector in terms of income and employment is the federal government, with 1200 jobs and income of $17 million (Table 3-11). Most of this is attributable to the Fallon Naval Air Station which has been a mainstay of the economy since the late 1940s.

Agriculture is also a foundation of the county economy. It accounts for about 700 jobs and $8 million in income. Total sales in 1981 accounted for $47 million or 20 percent of statewide sales (U.S. Bureau of Economic Analysis, 1983). This ranks Churchill County as the top agricultural producer in the state.

Tourism is becoming increasingly important to the county. It accounts for 400 jobs and $5.5 million in income. It is part of the services sector which has been the most rapidly growing in the county.

The other main sectors of the county economy are trade, and state and local government. These are generally considered to be non-basic sectors. Rather than causing economic growth, they respond to growth in other sectors.

TABLE 3-10
LAHONTAN AREA POPULATION GROWTH
1970-1980

Area	1970 Pop.	1980 Pop.	% Change	Annual Growth Rate
Churchill County	10,500	13,900	32%	3%
Northern Lyon County (Canal Township)	1,500	3,300	126%	8%
Gabbs	1,000	900	-9%	-1%
Lahontan Area	13,000	18,100	39%	3%
Nevada	488,700	799,200	64%	5%

Source: U.S. Bureau of the Census, "1980 Census of Population", Washington, D.C., 1981.

TABLE 3-11
CHURCHILL COUNTY INCOME AND EMPLOYMENT[1/]
1981

Sector	Income	Percent of Total	Employment	Percent of Total
Agriculture	$ 7,917,000	6	719[2/]	14
Mining	3,200,000	2	117	2
Construction	5,164,000	4	209	4
Manufacturing	3,858,000	3	195	4
Transportation & Public Utilities	2,827,000	2	114	2
Trade	10,434,000	8	887	17
Finance, Insurance and Real Estate	2,012,000	2	116	2
Services	11,340,000	9	825	16
Federal Government	16,900,000	13	1,161	22
State and Local Government	12,719,000	10	867	17
Residence Adjustment (income from county residents who commute)	6,855,000	5		
Unearned Income (Dividends, Interest and Rent)	25,113,000	19		
Transfer Payments (Social Security, Unemployment, etc.)	23,117,000	18		
TOTAL	$131,456,000		5,210	

[1/] Source: U.S. Bureau of Economic Analysis, 1983

[2/] Includes Proprietors

Data is very limited for the portions of the Lahontan RMP area outside of Churchill County. In northern Lyon County, Fernley and Silver Springs are both rapidly growing communities. Although Fernley has been primarily a hay and livestock producer, in recent years it has become suburbanized due to spillover growth from Reno. Silver Springs is dependent on retiree income and recreation at Lake Lahontan. The economic base of the Gabbs area in Nye County consists of the C.E. Basic magnisite mine. Severe economic dislocation has occurred since the mine started reducing its workforce. No communities exist in the Mineral or Storey County portion of the RMP area.

Tax and Fiscal Structure

Local governments in the RMP area, as well as throughout Nevada, have had increasing financial problems in the past few years due to sharp reductions in the legal property tax level and less than projected revenues from sales taxes. Churchill County had total expenditures of $4.3 million in FY1981/1982. This exceeded revenues by about $100,000. Payments in lieu of taxes from BLM have been an important source of revenue for the county. They amounted to $430,000, more than ten percent of total revenues and greater than property tax revenues. Other receipts from public lands are analyzed under the mining industry section. Budget data for other counties is displayed in Table 3-12.

Table 3-12

COUNTY BUDGET SUMMARY[1/]
FY 1981/1982
$ Thousands

County	Expenses	Receipts	Property Tax	PILT[2/]
Churchill	$4,262	$4,140	$320	$434
Lyon	5,706	6,050	605	429
Nye	7,679	6,641	811	342
Storey	1,430	1,296	189	9

1/ Includes County government only.
2/ Payment in lieu of taxes.

Source: Wilcox, Pam 1983 (personal communication)

Resource Industries

Public lands in the RMP area serve as a resource base for several of the area's industries. These are livestock ranching, recreation, mining, and forest products.

Livestock Ranching

Livestock have been using about 64,000 AUMs of public land forage in the Lahontan RMP area. By comparison, total forage requirements for Churchill County amount to over 800,000 AUMs. Of the 200 cattle ranchers in the area, 26 have been actively using public land forage (Table 3-2).

A ranch budget survey (OMB#1004-0123) was conducted in the RMP area in October and November, 1982. Based on the survey data, the ranchers were divided into two categories: 1) Yearlong - those ranches that use public lands for most or all of the year (ten ranches), and 2) Winter - those ranches that use public lands primarily during the winter (16 ranches).

The survey data was used to develop ranch budgets, production, and resource data for "typical" ranches in each category. Since the two sheep ranches account for only three percent of the total livestock use, no separate budget data was developed for them. However, they were included in the winter use ranch category. Linear Programming models were developed for the typical ranches to facilitate development of accurate baseline data and impact analysis (Appendix K).

Although each individual ranch has its own characteristics and may vary significantly from other ranches, it is felt that the "typical" ranches adequately represent the majority of operations in their category for the purposes of this analysis.

The typical ranch operation can be described as cow-short yearling. In this type of operation, calves are held over the winter on hay and sold in the spring. This is not typical of other areas of Nevada. It can be explained in part by the abundance of hay and winter range in the area. Other more typical cow-calf operations are also common.

Calving is yearlong, but concentrated in the spring when about two-thirds of the calves are born. They are generally sold the following February or March at about 600 pounds. Many of the ranchers also produce hay for sale. Yields are high at four to five tons per acre.

The Ranch Budget Summary Table below summarizes the ranch budgets (Appendix K).

RANCH BUDGET SUMMARY
LAHONTAN AREA 1981

	Ranch Type	
Item	Yearlong	Winter
Herd Size	562	350
Sales	$153,000	$104,000
Costs	137,000	96,000
Returns	$ 16,000	$ 8,000

Total receipts from sales by all the ranches amounted to about $3.2 million in 1981. Of this amount, earnings (net labor and proprietors income) totaled $600,000. This represents about eight percent of county farm income, and 0.5 percent of total county income. Total employment on the public land ranches amounted to 67 including proprietors.

On a countywide basis, public land grazing contributes not only to the livestock sector, but through the multiplier effect, to other sectors of the county economy. The input-output model of Churchill County prepared for this analysis indicates a livestock output multiplier of 2.13. Therefore the total direct, indirect and induced output from the public land ranches amounted to $6.8 million. Earnings amounted to $2.3 million or two percent of county income. Employment amounted to 169 jobs or three percent of county jobs.

Although the ranchers have no legal title to grazing preferences, they have acquired a de facto market value. This value reflects the additional capacity that public land grazing allotments provide to base property, and is a result of grazing fees that have historically been less than fair market value (Neilson and Workman, 1971). At an estimated value of $40 per AUM of active preference, the total value is about $3.1 million.

Recreation Industry

Expenditures for recreation on public lands in the RMP area contribute to the area's services and trade sector through purchases of food, fuel, lodging, and equipment. Although no estimate of overall recreation expenditures is available due to a lack of data, estimates of expenditures for affected uses have been developed.

Wildlife

This analysis includes only consumptive (hunting) use of wildlife due to a lack of data on nonconsumptive use. Although consumptive wildlife use is of importance to the economy of Churchill County, very little can be attributed to public lands. Most hunting is for waterfowl at the Stillwater Wildlife Management Area. Hunting on public lands is primarily focused on mule deer and chukar partridge. There is also a minor amount of sage grouse hunting. Total income generated from hunting these species amounts to about $13,000 per year, including the multiplier effect (Appendix K). This accounts for one job.

Wild Horses

There are no data on income or expenditures generated by horse adopters in the Lahontan area. Undoubtedly some economic activity is generated by people who enjoy sightseeing for horses. Estimated expenditures per day for such use amounts to $14 (U.S. Fish and Wildlife Service, 1982). However, there is no estimate available of the number of days. Other activity is generated from expenditures by horse adopters and roundup crews.

Wilderness

Most of the mule deer hunting occurs in the WSAs. Other recreational activity in the WSAs (day hiking, random picnicking, ORV use, backpacking, etc.) is estimated to generate about $20,000 of income and two jobs, including the multiplier effect (Appendix K).

Mining Industry

With the exception of the Gabbs area, the mining industry is not of major economic importance to the Lahontan RMP area. C.E. Basic Incorporated's magnesite mine in Gabbs reported net proceeds of $1.3 million for 1981 (Nevada Department of Taxation, 1982). Since that time the mine has reduced operations, causing major economic dislocations in the community.

In Churchill County the mining industry accounted for $3 million in income and 117 jobs in 1981, representing about two percent of total county income and employment, respectively (Table 3-11). Much of the mining industry consists of processing operations such as Standard Slag, which obtain raw materials from outside the county. Actual mine production totaled $1.4 million in gross yields and $300,000 in net proceeds representing 0.3 percent and 0.2 percent of statewide gross yields and net proceeds, respectively (Nevada Department of Taxation, 1982). Diatomite is the most significant product.

There are 13 active mining operations adjacent to the WSAs. Five of these are listed in the Directory of Nevada Mine Operations for 1981. Major products are gold, silver, and antimony. The United States relies on imports for most of its needs for each of these minerals. Employment at these mines totals 19, or less than one-half of one percent of Churchill County employment (Nevada Bureau of Mines and Geology, 1982). Net proceeds amounted to $103,000. This yielded about $1,000 in property taxes to the county.

A lot of interest has been generated by geothermal resources, particularly in and around Dixie Valley. Test holes have been drilled in, or adjacent to, the low elevation areas of the Stillwater, Job Peak and Clan Alpine WSAs. About 430,000 acres of Churchill County have been leased for geothermal purposes, of which about 32,000 are located in the WSAs. The total yield in lease revenues is about $520,000. Half of this goes to the U.S. Treasury. The other half goes to the State which allocates it to the counties for educational purposes. Non-producing geothermal leases are exempt from ad valorem taxes. If production occurs in the future, the net proceeds will be subject to the ad valorem tax which is currently $1.02 per $100 of assessed value (Churchill County Assessor, 1983).

Although oil and gas potential is considered low, almost one million acres in the county have been leased, of which about 148,000 are located in the WSAs. The total yield in lease revenues is about $1 million. These revenues are allocated in the same manner as geothermal tax revenues. Non-producing oil and gas leases are assessed at $2 per acre for ad valorem tax purposes. If production occurs in the future, taxes will be based on net proceeds.

Forest Products

Commercial use of forest products in the RMP area is limited to cordwood cutting from occasional commercial bid sales. Most of the use consists of individual cordwood cutters. Cordwood harvest totaled 413 cords in 1982. Receipts amounted to about $2,000.

SOCIAL CONDITIONS

Historically, the Lahontan Resource Area has largely reflected traditional, conservative, rural values, especially the values of freedom and independence. Ranching is valued as a source of identity for many area residents, both those who are an integral part of the agricultural sector as well as for those non-ranching residents who identify with ranching by virtue of their sharing a common rural background. This identity suggests that ranching is not just a business, but a way of life. Local ancestral ranching or community ties date back to the late 1800s. This is a way of life that is seen as involving every family member with each having an essential contribution to make. The family ranch is one of the major stabilizing factors in the community. As in other parts of the west, a decline in the number of family ranches is interpreted by many residents to be an equivalent in the decline in basic rural American ideals.

Any external control that affects the individual ranching operation is also seen as a threat to these same ideals. In particular, federal government natural resource management programs, policies, and regulations are seen as a form of external control that is a constant threat to the agricultural sector. Bureau programs or program changes are often seen as unnecessary and counterproductive. There is a constant sense of uncertainty about the direction future programs or program changes may take. Consequently, it is not uncommon for new programs or proposed program changes to be viewed with some degree of suspicion and apprehension by some area ranchers. In view of the ranching community's heavy dependency on the continued use of public lands to support livestock operations in the RMP area, it is not surprising that some members of that community are critical and judgmental when evaluating BLM programs that impact the livestock sector.

Since most of the lands within the Lahontan Resource Area are federally administered, many of the residents are dependent on continued access to those as well as to adjacent public lands for either their livelihood or to pursue their various recreational interests. Consequently, there is a great deal of concern about and interest in maintaining the "status quo" in any public land management proposals concerning those jobs. Public land management proposals or programs are viewed by these residents in terms of changes in what they perceive to be the traditional and historic uses of public lands.

While there appears to be continuing community support for disposal of public lands to provide for community expansion and/or agricultural development in the RMP area, there is strong opposition locally to any proposal for additional federal withdrawals.

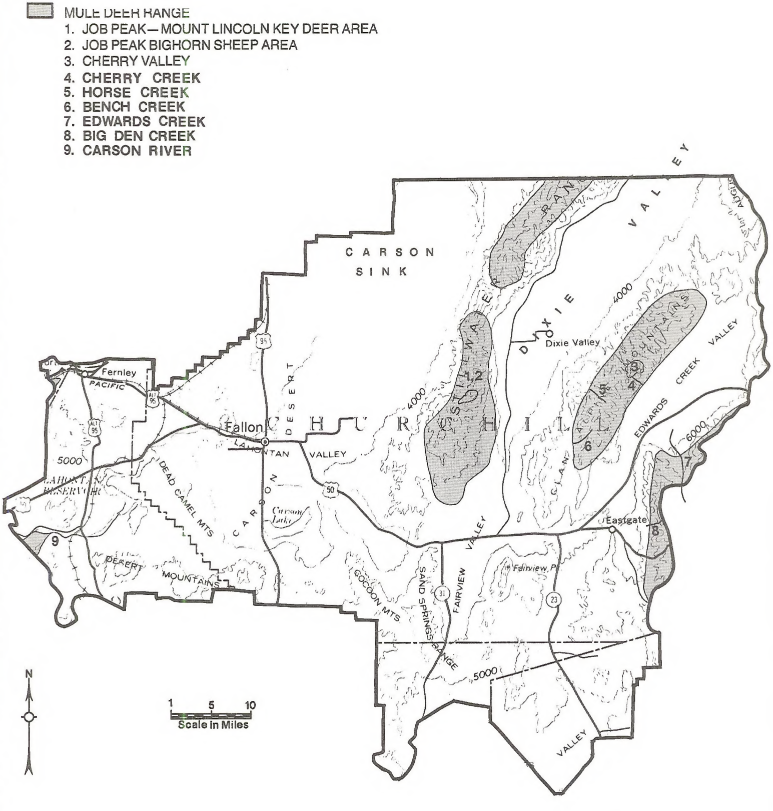
The Wilderness Study Process is viewed by many area residents as a program that will dramatically alter their ability to use the public lands. Of particular concern to those residents is the fact that ORVs would, for all practical purposes, be banned from those areas that are ultimately included in the NWPS. For those accustomed to roaming public lands at will, the imposition of any constraints limiting their activities is seen as limiting their sense of freedom and self-determination. In general, ranchers, miners, ORV participants, road hunters, and a number of other area residents, including those who simply like to drive through these areas for scenic enjoyment, feel that banning vehicles from wilderness areas is unwarranted and unnecessary.

According to a wilderness survey (OMB #1004-0122) conducted in the resource area as well as the adjacent Reno area in October-November of 1982, by BLM social scientists, the protection of wildlife, outdoor recreation, livestock grazing, and wilderness were considered to be very important by a majority of survey respondents. A plurality of those same respondents ranked mining next in importance, with ORV activity ranking last.

In general, rural respondents, especially those who have a significant dependency on continued access to public lands for their livelihood, oppose wilderness designation. Their rationale is that the constraints that accompany wilderness designation would cause additional financial hardship for the ranching and mining sectors. Urban respondents, the majority of whom do not have direct economic interests in the WSAs, generally support designation. Rural respondents tended to rank consumptive uses of public land resources (i.e.; grazing and mining) higher than did urban respondents. Urban respondents tended to rank nonconsumptive uses higher (i.e.; outdoor recreation and wilderness).

A majority (69 percent) of survey respondents endorsed the designation of BLM administered lands as additions to the National Wilderness Preservation System. Although survey respondents were not randomly selected, and therefore survey results should be treated with reserve as far as being representative of views resource area wide, these responses on wilderness are consistent with two statewide surveys (Nevada Division of State Parks SCORP Survey of Outdoor Recreational Issues, 1981; and Survey by Nevada Senator Howard Cannon, 1981). Those surveys indicated that a majority of Nevadans support the view that Nevada's unique natural and unusual areas need preserving.

There is, however, strong opposition within the RMP area as far as the wilderness program is concerned. For example, at a BLM District Advisory Board public meeting held in Fallon, Nevada on June 17, 1983, strong opposition to the wilderness program was voiced by a number of residents primarily representing the mining and agricultural sectors. Of particular concern were the constraints that wilderness designation would place on those activities which have the potential of enhancing the local economic vitality, i.e.; mining, oil, gas, and geothermal exploration, as well as grazing. Other participants at that meeting, particularly those from Dixie Valley, expressed serious reservations about the quality of solitude due to the increasing number of low level flights and accompanying sonic booms as a result of expanding training activity at the Naval Air Station in Fallon. The Commanding Officer of that activity, in a letter to BLM dated May 29, 1980, states that, "WSAs underlying Military Operating Areas (MOAs) are prejudicial to continued unrestricted use of the airspace required in the conduct of vital defense readiness training operations". Similarly, a letter from the Nevada Cattlemen's Association dated June 30, 1980, objects to all four WSAs based on their assessment that those areas lack adequate scenic qualities, or due to a number of man-made intrusions into the areas. The Board of Commissioners for Churchill County have also gone on record in June, 1980 objecting to proposed WSAs within Churchill County.

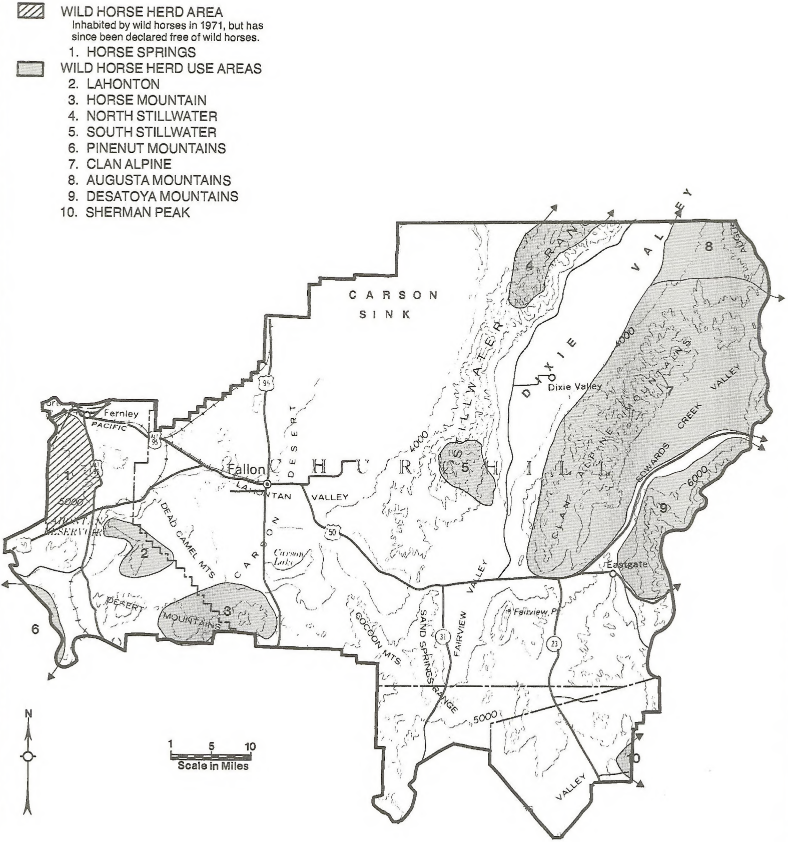


UNITED STATES DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT

CARSON CITY DISTRICT

LAHONTAN RESOURCE MANAGEMENT PLAN AREA

WILDLIFE HABITAT AREAS



UNITED STATES DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT

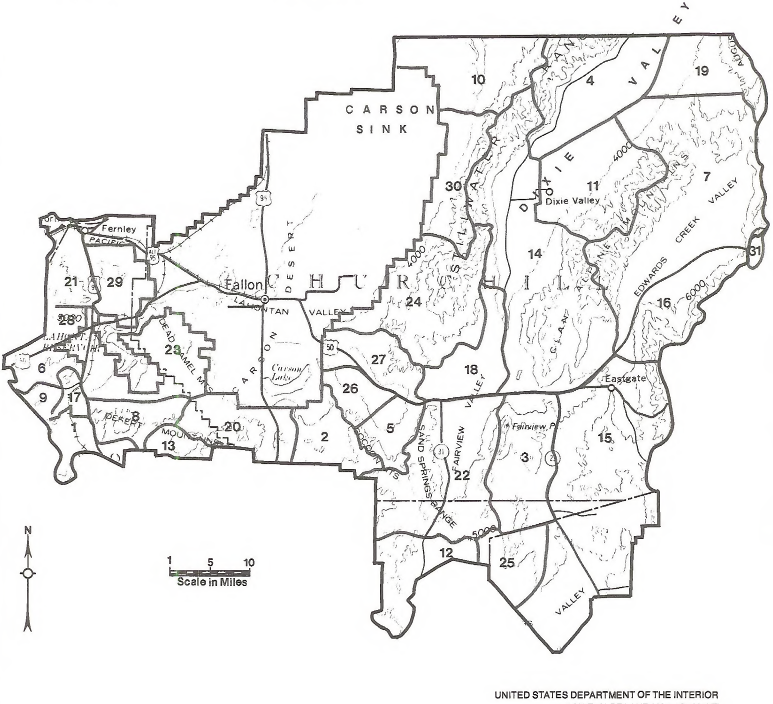
CARSON CITY DISTRICT

LAHONTAN RESOURCE MANAGEMENT PLAN AREA

WILD HORSES

ALLOTMENTS

1. Adriance Valley
2. Bass Flat
3. Bell Flat
4. Boyer Ranch
5. Bucky O'Neill
6. Churchill Butte
7. Clan Alpine
8. Cleaver Peak
9. Clifton Flat
10. Copper Kettle
11. Cow Canyon
12. Deadhorse Well
13. Desert Mountain
14. Dixie, Hare, Miss.
15. Eastgate
16. Edwards Creek
17. Fort Churchill
18. Frenchman Flat
19. Hole-in-the-Wall
20. Horse Mountain
21. Horse Springs
22. La Beau Flat
23. Lahontan
24. Mtn. Well/La Plata
25. Phillips Well
26. Rock Springs
27. Salt Wells
28. Stockton Flat
29. Truckee/Virginia
30. White Cloud
31. **Mt. Airy (New Pass Unit)**



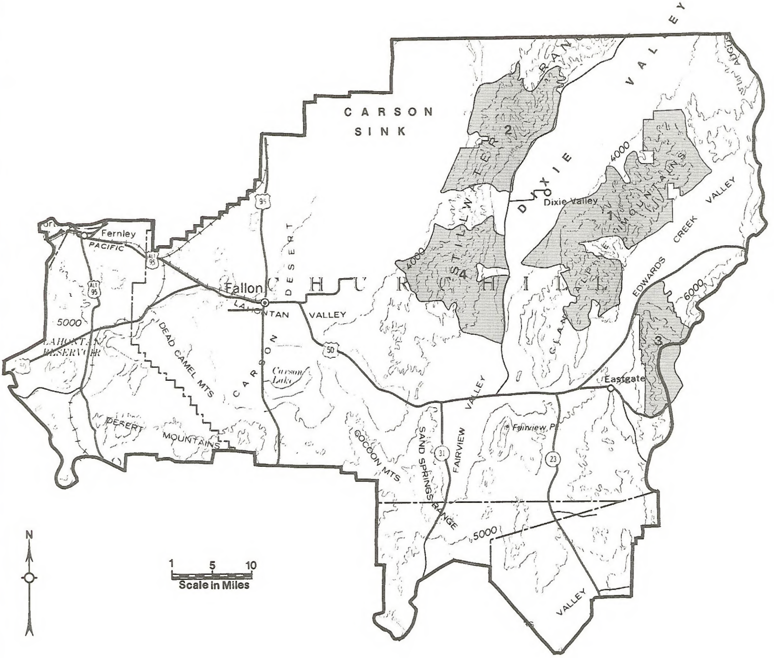
UNITED STATES DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT

CARSON CITY DISTRICT

LAHONTAN RESOURCE MANAGEMENT PLAN AREA

GRAZING ALLOTMENT BOUNDARIES

1. CLAN ALPINE RANGE NV-030-102
2. STILL WATER RANGE NV-030-104
3. DESATOYA MOUNTAINS NV-030-110
4. JOB PEAK NV-030-127



UNITED STATES DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT

CARSON CITY DISTRICT

LAHONTAN RESOURCE MANAGEMENT PLAN AREA

WILDERNESS STUDY AREAS

CHAPTER 4

ENVIRONMENTAL CONSEQUENCES

Introduction

This section presents the scientific and analytic basis for comparison of the alternatives and selection of the Resource Management Plan. As outlined in CFR 1502.2(b), the discussion of environmental consequences is in proportion to the significance of projected impacts. There are only brief discussions of other than significant issues. The criteria used to determine significance are outlined in CFR 1508.27 and include considerations of context and intensity. Threshold analysis is used where generally accepted thresholds are available (e.g.; water quality standards).

Discussion of impacts is also limited by data availability. Knowledge of the area and professional judgment, based on observation and analysis of conditions and responses in similar areas, have been used to infer environmental impacts where data is limited. Data gaps are identified where applicable.

Impacts to air quality and threatened and endangered plants were not considered significant and are not discussed further.

Assumptions for Analysis

Several assumptions were made in order to facilitate the impact analysis. These are listed below to aid the reader in reviewing the impacts.

1. Funding and personnel will be sufficient to implement the selected alternative.
2. All impacts would occur in the long term (5-20 years) unless otherwise stated.
3. A worst case analysis is used where data is limited.
4. Baseline vegetation data, while inadequate for making current adjustments, is adequate for analysis purposes.
5. No analysis of range improvements is included under the No Action alternative because the number and type cannot be projected. Such projects would only be implemented to resolve site-specific problems, as necessary, to maintain existing management practices.

Other assumptions used in the analysis for specific resources are outlined in the appropriate appendices.

NO ACTION ALTERNATIVE

SOILS

Erosion problems would continue in the seven identified specific problem areas.

On an overall basis, accelerated erosion and sediment yield should remain at the present average level of 1.1 tons/acre/year for the Lahontan RMP area. However specific problem areas would continue to exist. Channel erosion would continue in four areas: Middlegate Creek, Horse Creek, Edwards Creek, and War Canyon Creek. Accelerated wind erosion would continue in the Dixie Valley Wash and lower Bench Creek areas. Cherry Valley meadows would continue to have a serious gullying problem outside of the stabilization project area.

An increase in mining exploration and operations in wilderness study areas would result in increased surface disturbance for roads, pits, pads, etc., and in many cases these disturbed areas would offer limited opportunities for rehabilitation. Unprotected bare areas are highly susceptible to accelerated erosion, and sediment yield on these areas would increase.

WATER RESOURCES

Water Quantity

Under the No Action alternative total water consumption by livestock, wild horses, and wildlife would have no consequential impacts on the hydrologic budget for the area. Distribution of water would remain a problem for most areas outside the Stillwater, Clan Alpine, and Desatoya mountain ranges.

Water Quality

Overall water quality would decline.

The 1980 BLM water quality sampling and analysis documented that Cherry Creek and five other springs (16 percent of the sampled springs) exceeded the State of Nevada criteria for fecal coliform and/or pH for wildlife propagation. The only fishery sampled, Edwards Creek, exceeded State criteria for turbidity (Appendix D; and Sierra Env. Monitoring Report, 1981). Sediment resulting from channel erosion would remain a water quality problem in Middlegate and Buffalo Creeks. Under this alternative these water quality trends would continue, with an anticipated decline in the overall water quality for all unprotected water sources.

VEGETATION

Overall, seven percent, 81 percent and 12 percent of the planning area would have upward, static and downward trend, respectively. Overall, vegetation condition and productivity would each decrease one percent.

The declines in vegetation condition, trend, and productivity would be primarily due to continued overutilization and improper periods-of-use. Continued overutilization would reduce the vigor and vitality of the desirable, palatable climax plant species, ultimately resulting in deteriorated vegetation condition (Stoddard, Smith and Box, 1975). Also, improper periods-of-use, especially grazing use during critical growth periods, produce similar effects by repeatedly depleting carbohydrate reserves during the critical phases of plant development (Trlica et al, 1971; Pearson, 1964; Cook, 1966; Tueller, 1966).

Trend

The continuation of the present management program would maintain the current upward trend in vegetation in the Bass Flat, Desert Mountain, Lahontan, and Phillips Well allotments; downward trend in the Dixie Valley allotment; and no apparent trend in the remaining 25 allotments.

Approximately seven percent of the RMP area would have upward trend, 81 percent would have static trend and 12 percent would have downward trend (based on acres having vegetation condition).

Condition

Table 4-1 depicts the projected changes in ecological condition and forage condition for each allotment. In summary, those allotments having upward trend would have an increase of 4728 acres (three percent) in excellent ecological condition, while Dixie Valley allotment with its downward trend would have an increase of 14,641 acres (six percent) in poor ecological condition, and a decrease of 407 acres (two percent) in good forage condition. Overall within the Lahontan RMP area, the ecological condition would deteriorate one percent and forage condition may deteriorate less than one percent over the long term (Appendix G, Part 1).

Table 3-8 indicates that several allotments other than Dixie Valley have management problems which could affect vegetation condition in the future, however, there is not sufficient data to quantify these impacts. These problems include overutilization of specific areas, improper periods-of-use, and poor livestock distribution.

Productivity

A decrease in carrying capacity generally is associated with deteriorating vegetation condition. Analysis indicates that overall vegetation condition may deteriorate less than one percent. Although vegetative productivity would increase two percent in the Desert Mountain and Phillips Well allotments, and four percent in the Bass Flat and Lahontan allotments, these increases would be offset by a nine percent decrease in productivity in the Dixie Valley allotment. The net result would be a one percent decrease in productivity, overall (Appendix G, Part 2).

TABLE 4-1
PROJECTED VEGETATION CONDITION
NO ACTION ALTERNATIVE

	ECOLOGICAL CONDITION				FORAGE CONDITION 1/			
ALLOTMENT NAME	POOR	FAIR	GOOD	EXCELLENT	POOR	FAIR	GOOD	EXCELLENT
Adriance Valley	2,322	29,409						
Bass Flat	5,452	20,223	15,536	1,084				
Bell Flat	3,327	64,269	21,781	749	1,238			
Boyer Ranch	17,584	46,982	23,020		12,373			
Bucky O'Neill		12,269	19,159					
Churchill Butte	531	6,647	2,365					
Clan Alpine	9,547	127,031	72,613	1,806	53,563	7,592	3,658	
Cleaver Peak	784	16,156	19,942					
Clifton Flat	518	6,845						
Copper Kettle	2,996	25,687	14,361		9,471	498		
Cow Canyon	44,532	38,797	1,887		24,051			
Deadhorse Well	1,845	39,401	29,846	210				
Desert Mtn.	212	8,970	10,000	923				
Dixie, Hare, Miss.	107,863	116,386	5,319		32,385	2,382	3,662	
Eastgate	19,947	158,926	94,476	5,884	2,721	13,846	2,879	
Edwards Creek	1,327	24,794	13,712	3,693	10,684	2,675		
Fort Churchill	1,441	12,569	422					
Frenchman Flat	0	36,324	30,165					
Hole-in-the-Wall	45,406	34,644	2,429		1,323			
Horse Mtn.	1,090	29,939	26,991					
Horse Springs	4,278	9,926	400		344			
LaBeau Flat	15,427	76,278	41,741		917			
Lahontan	6,345	24,786	15,407	1,411				
Mtn. Well/La Plata	10,549	65,888	51,459	354	1,297	3,100		
Phillips Well	651	14,293	23,814	2,164				
Rock Springs	545	8,692	7,871					
Salt Wells	1,216	16,232	29,978					
Stockton Flat	2,201	7,026						
Truckee/Virginia	1,690	18,484	486					
White Cloud	12,243	31,024	8,938		10,840	233		
TOTAL	321,869	1,128,897	584,118	18,278	161,207	30,326	10,199	

1/ woodlands and seedings

* No analysis was done for the New Pass Unit of the Mt. Airy allotment (Battle Mountain District). The Mt. Airy allotment was analyzed in the Shoshone-Eureka RMP by the Battle Mountain District.

Source: Methodology for Predicting Shift in Condition, District Office Files, Carson City District, Nevada 1982.

Riparian and Aspen Communities

The condition of riparian and aspen communities would decline.

Riparian areas currently in a downward trend would continue to decline. Grazing animals would continue to overutilize the more palatable vegetation in riparian areas before making any significant use of the vegetation in the uplands. Primarily for this reason, ecological condition of this habitat type is not expected to improve (Dahlem, 1979 and Behnke and Raleigh, 1978).

The majority of the aspen habitat in the RMP area is in deteriorated condition with poor stand regeneration. These stands are composed largely of mature trees. As these mature trees die and regeneration is suppressed by overgrazing and bedding of grazing animals, the stands would eventually be reduced in size or eliminated (Coles, 1965). The reduction or loss of aspen communities would result in the simplification of the environment through loss of plant species diversity, and the loss of valuable food and cover for livestock, wild horses, and numerous species of wildlife.

WILDLIFE

Under this alternative the quality of small habitat types, aspen stands, riparian zones, meadows, and portions of some summer ranges would continue to deteriorate due to forage demand and spring and early summer grazing. Vegetative production in riparian areas would continue to decline over time as competition for available forage would remain high (Dahlem, 1979; Behnke & Raleigh, 1978).

Mule Deer

The lack of quality browse species in the area would continue, and is the major reason for low mule deer numbers in the area. Competition with domestic livestock and wild horses for available forage would continue in riparian areas in the Stillwater, Clan Alpine, and Desatoya mountain ranges. Vegetation would continue to receive seasonal, concentrated use with no periodic rest. The forbs which normally grow under aspen and cottonwood groves and in meadows would continue to be overutilized, resulting in less nutritious forage for lactating does (BLM Tech. Supl. 6601-6, 1974). This applies also to forbs on the key mule deer summer range (Hansen, 1982). Mule deer numbers under this alternative would remain low but stable due to population management by NDOW.

Bighorn Sheep

Competition generally doesn't exist between bighorn sheep and livestock in the Stillwater Range because the sheep habitat is located in the extremely rugged area east of Job Peak. Under this alternative bighorn sheep would expand their population and range to the west and north in areas that are inaccessible to livestock. Bighorn sheep would not tend to move into the areas where competition with livestock exists (McQuivey 1978).

Mountain Lion

The low but stable populations of mule deer would be reflected in mountain lion populations remaining stable with no increase.

Sage Grouse

Livestock and wild horses would continue to make heavy use of meadows and riparian areas, causing a decline in condition. Vegetative production and quality on critical brooding areas (except in the Cherry Valley stabilization project) would continue to be below potential. This deteriorated habitat condition would continue to impact sage grouse since they depend on the forbs in meadows and the insects associated with meadow vegetation (NDOW, 1982; BLM Tech Supl. 6601-3, 1970). Sage grouse populations under this alternative would continue to decline.

Chukar

The No Action alternative will have no direct impact on chukar. Continued livestock and wild horse use would maintain the status quo, both in the short and long term.

Nongame Birds and Raptors

Important habitat components for nongame birds and raptors such as aspen and cottonwood groves, riparian areas, and meadows would continue to decline in quality due to overutilization by grazing animals. This would impact nongame birds and raptors in that structural diversity would continue to decline, resulting in a loss of bird numbers and species (Thomas, 1979). The actual amount of bird species or population losses cannot be estimated due to lack of data.

No impact under this alternative is anticipated for prairie falcons and golden eagles, since their use is concentrated in the livestock winter areas and where no wild horse populations are found.

Fisheries

Under this alternative the Carson River, Cherry Creek, Edwards Creek, and Horse Creek riparian areas would continue to be impacted when livestock and wild horses were in the area. The viability of these fisheries could be threatened by flash flooding, high water temperatures, or turbidity occuring as a result of the poor riparian stream conditions. This could affect the threatened Lahontan Cutthroat trout in Edwards Creek.

WILD HORSES

Under this alternative no change to wild horse population numbers is expected.

Since no new water developments would be provided, no improvement to the wild horse habitat would occur through improved distribution.

Lack of additional water developments in the Horse Mountain Wild Horse Herd Use Area could be detrimental to that herd as the only known source of water is artificial and subject to being diverted.

The quality of the wild horse habitat, especially in the southern portion of the Clan Alpine Herd Use Area, will decline as the condition and productivity decreases (see Vegetation Section).

During gathering operations to maintain the population levels, some death or injury could occur due to the behavior of wild horses. Based on past experience, this is expected to amount to about two percent of the horses gathered.

VISUAL RESOURCE MANAGEMENT

Scenic quality would decrease.

Under the No Action alternative increased development activities may occur in the scenic mountainous areas due to non-designation as wilderness, lowering their scenic quality. Although any major surface disturbing activity would be analyzed and mitigation developed to meet VRM standards, it is probable that these standards would be lower without wilderness designation, allowing more modification and development to take place.

CULTURAL RESOURCES

The potential for loss of cultural sites would increase.

Continuing to manage public lands at the present level would have little impact on the cultural resources program, because they are protected from any authorized activities that may occur on public lands. One potential impact that may occur, however, is increased vandalism and destruction to cultural sites by artifact collectors. This potential would be most acute for any sites located within the various WSAs due to increased access.

RECREATION

Recreation use would increase by 4465 visitor days in the long term.

For the major types of recreational use in the area (hunting, interpretive sightseeing, and ORV use), the No Action alternative would have no appreciable effects. Over the long term, non-designation of WSAs may result in an increase of random ORV use as new roads and trails are built into the various WSA units through mining, oil and gas, or geothermal activities. This increase would be slight, tied mainly to population increases in the area and the extent of road or jeep trail construction, estimated for purposes of this document to be two percent per year. Therefore, in 20 years random ORV use of the area should increase from 2200 visitor days at present to 3974 visitor days.

Hunting pressure is related directly to the number of permits issued, which is determined by the Nevada Department of Wildlife. If present big game numbers are maintained, the present number of permits issued should remain the same. The type of hunting style may change from a dominant hiking-stalking hunting to more road type hunting in the future, should no areas be designated as wilderness and road access be increased within the WSAs (Clark and Starkey, 1979). Sage grouse hunting is expected to be eliminated due to population decline, resulting in a decline of hunter use days from the present 1961 to a projected 1861.

Non-designation of the various WSAs would result in a slower rate of increase in other recreational activites (camping, hiking, etc.) due to conflicts with other resources, loss of desirability as a recreational area, and lack of publicity about the area. It is anticipated that backcountry recreational use of the various WSAs would increase from 2951 visitor days/year at present to 5742 visitor days in the year 2004 (Appendix H). Over the long term loss of primitive and unconfined types of recreation would occur.

LIVESTOCK GRAZING

Livestock use would decline by one percent to 63,861 AUMs in the long term.

Under this alternative, livestock use would continue to be licensed at the present levels (Table 3-2).

As indicated in the vegetation section, vegetative productivity is expected to decline by one percent in the long term. This would result in a decline of 378 AUMs of livestock use to a total of 63,861 AUMs.

GEOLOGY, ENERGY, AND MINERALS

The geology, energy, and minerals resources would not be affected by this alternative.

Wilderness

The lands embraced within the four WSAs, totaling 432,206 acres, would remain open to appropriation and operation under the mining laws, mineral leasing laws, and all other laws pertaining to geology, energy, and minerals, to the extent that exists today.

It is anticipated over the short term, that precious metal and geothermal production would increase within, and along the boundaries of, the four WSAs. Long term production is speculative, but would most likely be restricted to those commodities known to exist in the area, and be further restricted to those areas of highest potential [USDI, BLM, Great Basin GEM, 1983 (GRAs No. NV-04, NV-05, and NV-06)].

Lands Disposal

No impacts to the geology, energy, and minerals resources would occur as a result of continued case-by-case disposal of lands. Standard operating procedures require a minerals evaluation of lands proposed for transfer. In general, lands found to be of more than nominal value or found to be mineral in character would not be transferred out of public ownership.

FORESTRY

This alternative would allow for a cut of 1234 cords per year.

The No Action alternative would result in positive benefits to forest products harvesting. Removal of wilderness management constraints would allow woodland harvesting to commence on 13,090 acres of pinyon/juniper woodland that is currently contained within the WSAs. The prime cutting sites include Camp Creek, War Canyon, Bench Creek, Byers Canyon, and the Willow Creek-Big Den area. Utilization of these areas could increase allowable cut to 1234 cords/year.

Current demand from public family woodcutters is approximately 500 cords/year and is not expected to rise in the short term. This demand is presently being met by existing cutting areas and could continue to be met indefinitely. However, the increase in the allowable cut could create an expansion of commercial woodcutting activities.

WILDERNESS

Wilderness values would not be protected on 432,206 acres, and none of this acreage would be added to the National Wilderness Preservation System (NWPS).

Actions by man would, in the long term, degrade the wilderness character of the four WSAs by reducing their natural character and the opportunity to experience solitude and/or primitive and unconfined types of recreation in a natural setting. These impacts would not, however, be uniform across each WSA.

Clan Alpine Mountains

Roads could be built to provide better access to mining claims and lands leased for geothermal and oil and gas use, particularly in the northern half of the WSA. Additional impacts could accrue if mineral extraction, mining disturbance, and/or exploration for geothermal and oil and gas resources takes place. Woodland products could be harvested on 10,850 acres within the unit, primarily around Camp and Bench Creeks, and Byers and War Canyons. Off-road vehicle use for recreation and other resource uses would continue and possibly increase, especially along Cherry and War Creeks, on the alluvial fans, and in the lower elevations of the range resulting in increases in soil erosion, loss of vegetation, and loss of solitude.

The consequences of these activities would be a loss of naturalness and opportunities for solitude in the northern half of the area, and a somewhat lesser loss in the southern third of the unit below Cherry Creek. It is expected that the wilderness character and integrity of the area would be reduced on all but the most rugged and steep topographic portions of the WSA.

Stillwater Range

With non-designation, the Stillwater Range WSA could experience extensive impacts from mineral exploration. Road building would likely extend into the mountains all along the western side of the WSA as well as the northeastern portion of the unit, eliminating naturalness and opportunities for solitude. Additional roadbuilding and exploration activities could be expected to occur along the alluvial fans on both sides of the area in conjunction with geothermal and oil and gas activities. Two areas of private inholdings without a means of access at present, could have roads built to them and their mineral resources developed. It is possible that the north-central portion of the area around Hare and Mississippi Canyons would remain in an essentially natural state due to its rugged topography. However, this would be a relatively small area (roughly 7000 acres) and the sights and sounds of activities surrounding this land would reduce its solitude opportunities.

Implementation of this alternative may result in a loss of wilderness values throughout the unit.

Desatoya Mountains

Long term impacts of this alternative on the Desatoya Mountains WSA could result in a loss of wilderness values in portions of the study area. Approximately 2,240 acres of woodland resources could be harvested, primarily between Dry and Willow Canyons on the west side of the unit. Most of this acreage lies near the mouths of several scenic canyons. The loss of a natural appearance in these areas would reduce both solitude and recreation opportunities.

While topographic barriers on the west side would likely protect this part of the WSA from uncontrolled ORV use, the more rolling, open terrain east of the main ridgeline may experience the creation of additional ways and a consequent loss of naturalness and solitude opportunities. The east side of the unit receives relatively heavy hunting pressure, and without the control of ORVs provided through designation it is likely that wilderness values would be jeopardized in the long term.

Should the oil and gas leases at the extreme northern end of the WSA be developed, roadbuilding and exploration activities could eliminate wilderness values on approximately 2100 acres.

The area's mineral potential is low to moderate, however, little interest has been shown in mineral exploration to this time. Should this type of activity begin, however, the associated road building and surface disturbance in this unit would reduce wilderness values.

Although it is expected that the rugged, mountainous west side of the WSA would retain its natural character over the long term, the potential for reduction of wilderness values under this alternative is substantial.

Job Peak

If geothermal and/or oil and gas exploration take place along the alluvial fan and lower foothills of the range on the east side of the unit, naturalness and solitude opportunities in these areas would be reduced. Mineral exploration and possible development of mineral resources in the northern quarter of the area and on Table Mountain would reduce naturalness and solitude opportunities.

Use of ORVs for recreation, livestock management, mineral exploration, and other resource uses would continue; new ways and roads may be created. Solitude opportunities and naturalness would be reduced.

It is expected that the mountainous core of the WSA in the east-central portion of the unit would retain its natural character due to its steep, rugged topography; while the wilderness values and integrity of the remainder of the area would be reduced over the long term.

LANDS

This alternative considers land disposals on demand on a case-by-case basis, and would have a minimal impact on the lands resource. This would primarily be small acreage disposals around the population centers under the Recreation and Public Purposes Act.

ECONOMIC CONDITIONS

Regional income would increase by $6500.

Economic Structure

This alternative would result in inconsequential changes in the area's economic structure. Input-output analysis indicates a net increase in annual regional income amounting to $6,500, including the multiplier effect (less than one percent of Churchill County income). Employment would not be affected. A minor decrease in the livestock industry would be offset by a minor increase in the trade and services sectors as outlined below.

Tax and Fiscal Structures

This alternative is not expected to affect the tax or fiscal structure of local governments in the area.

Resource Industries

Livestock Ranching

Due to a one percent decline in vegetative production under this alternative as outlined in the livestock section, this alternative would result in a minor decrease in livestock related economic activity as outlined in the following table.

LIVESTOCK RELATED ECONOMIC IMPACTS 1/
No Action Alternative

	Annual Income (% change)	Employment (% changes)
Yearlong Use Ranch Proprietors	$ -310 (-2%)	N/A
Winter Use Ranch Proprietors	+ 70 (1%)	N/A
Livestock Sector 2/ Proprietors & Labor	-3,200 (<1%)	-1 (<1%)
Regional 2/	-11,500 (<1%)	-1 (<1%)

1/ Change from current levels.
2/ Percent change from current income and employment from the public land ranches.
3/ Includes multiplier effect

Note: Methodology outlined in Appendix K.

No change in the capital value of grazing allotments is expected under this alternative.

Recreation Industry

The recreation industry (primarily the trade and services sectors) would experience a minor increase in economic activity under this alternative due to an increase in backcountry recreation, which would more than offset the loss of sage grouse hunting use. The projected increase in recreation use of 4465 visitor days (Recreation Section) would result in an increase in regional income of $18,000 and one job, including the multiplier effect (Appendix K). This represents less than one percent of Churchill County income and employment, respectively.

Mining Industry

No opportunities for increased mineral or energy production would be foregone as outlined in the Geology, Energy, and Minerals section.

Forest Products

No opportunities for increased commercial woodcutting would be foregone as outlined in the Forestry section.

SOCIAL CONDITIONS

This alternative would have minimal effects on current social conditions in the RMP area.

This alternative in essence would perpetuate the status quo. The maintenance of the status quo would probably find a broad base of support among those individuals and interest groups who are dependent in part or in total on access to public land resources for their livelihood or their recreational activities. However, the ranching sector could be expected to oppose that element of the alternative that stipulates that only minor new range improvement projects would be initiated. The resource area ranching sector is anxious that the BLM use their management tools and revenue from grazing fees to develop the grazing potential of the area. The implementation of this alternative would probably be viewed as thwarting that effort to some extent.

It could be expected that those individuals and interest groups with an environmental orientation would oppose the implementation of this alternative. Implementation could, in their view, perpetuate what they perceive to be the degradation of the public lands due to overgrazing. It could be expected that implementation of this alternative would adversely impact on relations and cooperation between those individuals and interest groups and BLM.

It could be expected that those individuals and interest groups who are environmentally or preservation oriented would, at the regional and national levels, adamantly oppose the nondesignation of any wilderness. Many local residents, including segments of the ranching and mining sectors, would react positively to the nondesignation of any wilderness.

Local Community

No major impacts would occur at the local community level as a result of implementing this alternative.

Regional and National Communities

It could be expected that those individuals and interest groups that are environmental protection oriented would oppose the implementation of this alternative. This would contribute toward an increased dissatisfaction with BLM management policies.

SOILS

Erosion problems would continue on one of the seven identified specific problem areas.

Overall, the soils resource would remain in its present stable condition under the Resource Protection alternative. Average sediment yield for the RMP area would remain at 1.1 tons/acre/year initially, decreasing towards 0.9 tons/acre/year as the AMP/grazing management systems begin to affect grazing distributions (Appendix C). Areas impacted by channel and gully erosion (Middlegate, Edwards, and Horse creeks, and Cherry Creek meadows) would be protected, as would the area affected by accelerated wind erosion on lower Bench Creek. All of these problem areas should stabilize under this alternative. Accelerated wind erosion in the Dixie Valley wash area would continue to be a problem.

Designation of 432,257 acres as wilderness would protect those areas from surface disturbance and resulting sediment yield. Such disturbances could be caused by mining activity, ORV use, etc.

WATER RESOURCES

There would be a minor improvement in water distribution.

There would be a minor improvement in overall water quality.

Water Quantity

The water facilities proposed in the short term under this alternative would slightly improve distribution in the Category I allotments. Water occurrence would remain a problem in most of the Category M and C allotments. Improvements for wildlife watering would occur in the Sand Spring Mountain and Desert Mountain HMP areas with the addition of 15 guzzlers.

Water Quality

Water quality should have a slight improvement due to the proposed decrease in livestock use, thus reducing the pressure on unprotected water sources. However, this improvement would be partially offset by the increase in wild horse and wildlife use.

Protection of 130 springs and 53 miles of streams under this alternative should result in a long term improvement in water quality. Cherry Creek, Edwards Creek, and the five springs indicated by the 1980 BLM water quality sampling and analyses as exceeding the State criteria for wildlife propagation and aquatic life would be protected, and should improve. Only slight improvement in sediment is expected with the protection of Middlegate Creek due to the deflection of water to the steep banks by an increase in riparian vegetation in the channel bottom. In the short term, no vegetation is anticipated to stabilize the banks because of the almost vertical slopes. The result would probably be a decrease in downcutting but an increase in bank erosion.

Wilderness designations would provide increased protection of surface water sources within designated areas from impacts by excluded surface disturbance activities. Under this alternative about 24 miles of perennial streams and 383 springs would be located within wilderness boundaries. (Does not include areas in Lander County.)

VEGETATION

Overall, 66 percent, 28 percent and six percent of the planning area would have upward, static, and downward trend, respectively. Ecological condition would improve two percent and forage condition would improve less than one percent. Vegetative productivity would increase four percent and vegetative treatments would result in a net increase of 124 AUMs.

General

Vegetation condition, trend, and productivity would improve in some Category I allotments. These improvements would be due primarily to overall reductions in total vegetation utilization, three months of deferred use in the spring, improved grazing distribution, AMPs and grazing systems, and range improvements. These actions would provide for proper management of livestock grazing use, rest for desirable key plant species, and the proper level of utilization. Reduced grazing pressure on vegetation resources would allow increases in desirable plant species' vigor, vitality, cover, and production, resulting in improved condition and trend (Houston and Woodward, 1966; Van Poollen and Lacey, 1979; Clements, 1949 and Cook and Stoddard, 1963). Similar improvements in the vegetation resource would result from grazing systems (Shiflet and Heady, 1971 and Leithead, 1960). Benefits would also result from three months of spring deferral and proper periods-of-use (Hanley, 1979; Blaisdel and Pechanec, 1949; Britton et al, 1979; Martin, 1978; Herbel, 1971; Mueggler, 1950; Laycock, 1961; and Cook, 1971).

The improvements in vegetation condition, trend, and productivity in ten Category M and C allotments would largely be due to deferred use during the critical growth period, reduced yearlong use by wild horses, and reductions in total grazing use.

The deterioration in condition, trend, and productivity in one Category I and two Category M allotments would be the result of the considerable increase in yearlong use by wild horses, and those impacts discussed in the No Action alternative.

Repeated grazing use during critical growth periods would continue in a few allotments (e.g.; Hole-in-the-Wall, Horse Mountain, Cow Canyon, Clan Alpine, and Dixie Valley) where sizable wild horse populations occur. The repeated grazing use during critical growth periods would suppress the recovery of desirable plant species and the beneficial effects of the proposed management actions would be reduced (Trlica et al, 1971; Pearson, 1964; Cook, 1966; Tueller, 1966).

Trend

Any short term changes in vegetation trend would be minimal and unmeasurable.

In the long term the following vegetation trend would exist in the Category M allotments: Bass Flat, Desert Mountain, and Phillips Well would maintain their current upward trend; Bell Flat, Boyer Ranch, Eastgate, Mountain Well/La Plata, and White Cloud would improve from static to upward trend; Horse Mountain would deteriorate in trend; and the remaining allotments would maintain or develop static trend. The following trend would exist in the Category I allotments: Clan Alpine, Copper Kettle, Dixie Valley, and Edwards Creek would improve from either downward or static trend to upward trend; Cow Canyon would maintain static trend; and Hole-in-the-Wall would deteriorate in trend. The Category C allotments, Adriance Valley and Horse Springs, would improve from static to upward trend while the remaining Category C allotments would maintain static trend.

Approximately 66 percent of the planning area would have upward trend, 28 percent would have static trend, and six percent would have downward trend (based on acres having vegetation condition following land disposal) (Appendix G, Part 1).

Condition

Of the 2100 acres of public land identified for disposal, 588 acres occur within a grazing allotment. These acres are primarily in fair condition with low potential. The relative degree of improvement possible on the remaining acres would be somewhat greater due to the loss of these low potential lands.

Table 4-2 depicts the changes in vegetation condition projected for each allotment. Vegetation condition would deteriorate approximately five and seven percent in the Hole-in-the-Wall and Horse Mountain allotments, respectively; but the net effect of this alternative would be overall improved vegetation condition. Following deletion of those acres identified for disposal, the following improvement in ecological condition would occur on public land: the excellent and good classes

TABLE 4-2
PROJECTED VEGETATION CONDITION
RESOURCE PROTECTION ALTERNATIVE

ALLOTMENT NAME	ECOLOGICAL CONDITION POOR	FAIR	GOOD	EXCELLENT	FORAGE CONDITION 1/ POOR	FAIR	GOOD	EXCELLENT	DISPOSED LANDS POOR	FAIR	GOOD	EXCELLENT
Adriance Valley	2,128	28,090	1,513									
Bass Flat	5,452	20,223	15,536	1,084								
Bell Flat	3,027	60,759	24,271	2,069	1,176	62						
Boyer Ranch	16,201	44,206	24,827	2,352	11,754	619						
Bucky O'Neill	0	12,269	19,159									
Churchill Butte	531	6,647	2,365									
Clan Alpine	8,920	117,685	78,253	6,139	50,885	9,301	3,844	783				
Cleaver Peak	784	16,156	19,942									
Clifton Flat	518	6,845	0									
Copper Kettle	2,846	24,343	15,106	749	8,997	947	25					
Cow Canyon	44,532	38,797	1,887		24,051							
Deadhorse Well	1,845	39,401	29,846	210								
Desert Mtn.	212	8,970	10,000	923								
Dixie, Hare, Miss.	86,045	128,735	14,314	474	30,558	3,692	3,976	203				
Eastgate	18,656	148,591	99,297	11,741	2,585	13,290	3,747	184		555	33	
Edwards Creek	1,241	23,103	14,686	4,496	10,150	3,075	134					
Fort Churchill	1,441	12,569	422									
Frenchman Flat	0	36,324	30,165									
Hole-in-the-Wall	49,287	31,127	2,065		1,323							
Horse Mtn.	4,922	29,589	23,509									
Horse Springs	4,050	9,568	966	20	327	17						
LaBeau Flat	15,427	76,278	41,741		917							
Lahontan	6,791	26,053	14,763	342								
Mtn. Well/La Plata	9,779	62,162	52,718	3,591		4,242	155					
Phillips Well	651	14,293	23,814	2,164								
Rock Springs	545	8,692	7,871									
Salt Wells	1,216	16,232	29,978									
Stockton Flat	2,201	7,026										
Truckee/Virginia	1,690	18,484	486									
White Cloud	11,631	31,991	8,167	416	10,298	763	12					
TOTAL	302,569	1,105,208	607,667	36,770	153,021	36,008	11,893	1,170		555	33	

1/ Woodlands and seedings

Note: No analysis for that portion of the New Pass unit of the Mt. Airy Allotment (Battle Mountain District) within the Lahontan RMP area (4,328 acres) has been prepared due to lack of data. This allotment is analyzed in the Shoshone-Eureka RMP prepared by the Battle Mountain District.

would increase 23,220 acres (one percent) and 22,708 acres (one percent), respectively; while the fair and poor classes would decrease 40,418 acres (two percent) and 5,510 acres, respectively.

Changes in forage condition would occur on the remaining public land as follows: the excellent, good, and fair classes would increase 1,170 acres, 927 acres, and 5870 acres, respectively; while the poor class would decrease 7967 acres. Overall, forage condition would improve 0.4 percent (Appendix G, Part 1). Vegetation treatments would improve 360 acres from the low, fair ecological condition class to the high, good forage condition class, and 600 acres from the fair to the excellent forage condition class (Appendix G, Part 3).

In addition, a 2,000 acre prescribed burn (release treatment for bighorn sheep) is proposed in a woodland area south of Job Peak in the Mountain Well allotment. These stands currently have an average overstory canopy cover of at least 15 percent, limited understory cover and production, low potential, and forage condition ratings of poor or fair (BLM Lahontan Vegetation Condition Inventory, 1980). Due to a limited seed source of highly palatable perennial grasses, forbs, and shrubs, burning these stands would result primarily in the slow establishment of annual grasses, forbs, and a combination of perennial shrubs (e.g.: broom snakeweed, gooseberry, rabbitbrush and sagebrush). There would be a gradual increase in forage condition on these areas in the long term, however, forage condition would not improve beyond the upper range of the fair class, based on professional judgment.

Productivity

Changes in vegetative productivity would parallel the changes in vegetation condition. Productivity would decrease three percent and six percent in the Hole-in-the-Wall and Horse Mountain allotments, respectively, but increase from two percent to eight percent in those allotments with improved vegetation condition. Overall, vegetative productivity would increase four percent, although in some cases the increase could be partially countered by the loss of available production associated with land disposal and riparian habitat protection (Appendix G, Part 2 and Appendix L, Table 1).

Range Improvements and Vegetation Treatments

Direct impacts of other range improvements (e.g.; pipelines, tanks, troughs and fences) to vegetation condition, trend, and production would be minimal due to the small number of units and area involved. These improvements support grazing systems, however, and therefore contribute to the improvement in vegetation condition and trend predicted for the Category I allotments.

The areas proposed for seedings or brush control have moderate potential, poor or fair ecological condition, and big sagebrush aspect. Conversions of these areas to vegetation communities of introduced grassland species would result in an approximate net increase of 104 AUMs within five years (Appendix G, Part 3).

The conversion of 2,000 acres of woodland to a mixed community of primarily annual grasses, forbs, and less desirable shrubs would result in an approximate net increase of 20 AUMs within the long term. The tree species would establish themselves again within 30 years of treatment and understory production would subsequently decline (Appendix G, Part 2)

These increases would, in the long term, contribute to the decrease in spring grazing intensity on native range and allow improvement in ecological condition and trend. This would be of particular benefit in the Clan Alpine allotment.

Riparian and Aspen Communities

The condition of riparian and aspen communities would improve in the long term.

Under this alternative short term over-utilization of riparian and aspen communities would continue except in the 824 protected riparian acres.

In the long term, with the implementation of grazing systems and protection of the riparian areas proposed for this alternative, vegetation condition would improve. Plant species diversity, cover, and production would improve, resulting in increased streambank stability, sediment control, and improved habitat for all wildlife and grazing animals (Dahlem, 1979; Duff, 1980).

Grazing animals would continue to overutilize the more palatable vegetation available in riparian areas before making use of upland range (Dahlem, 1979 and Behnke and Raleigh, 1978). Thus, the ecological condition of unprotected riparian habitat is not expected to improve, and impacts from grazing animals on unprotected riparian habitat are expected to continue in all allotments (Dahlem, 1979; Behnke and Raleigh, 1978).

Proposed seedings and implementation of grazing systems are expected to improve ecological condition over time. Plant species composition, production and cover would improve in all areas, thereby reducing grazing pressure on aspen reproduction and resulting in increased production (Dahlem, 1979). Coles (1965) reported that sufficient forage for the number of grazing animals would prevent serious damage to aspen reproduction. Use by livestock results in damage to aspen reproduction only where herbacious forage is insufficient to support the number of livestock. Thus, intensive management including adjustments in grazing intensity, grazing systems, adjustments in periods-of-use, and range improvements would result in improved aspen root sucker survival and the perpetuation of existing aspens stands (Coles, 1965). The rate of improvement in the ecological condition of aspen sites would be expected to parallel the rate of improvement in ecological condition of all other range sites.

WILDLIFE

Habitat for all wildlife species would improve in both the short and long term.

In the short term, reducing and deferring livestock grazing for three months during the critical growth period will have a beneficial impact on all wildlife species habitat and populations by reducing competition for forage (Dahlem, 1979, and Behnke and Raleigh, 1978). Under this alternative approximately 824 riparian acres would be protected with the proposed developments.

In the long term with the implementation of grazing systems and protection of the riparian areas proposed for this alternative, vegetation condition would improve outside wild horse areas. Plant species diversity, cover, and production would improve resulting in improved habitat for all wildlife and grazing animals.

Under this alternative the greatest number of acres of wildlife habitat would be designated as wilderness, providing protection from degradation from surface disturbing activities.

Mule Deer

As indicated in Chapter Three and the No Action alternative, most of the mule deer habitat in the RMP area consists of low quality browse; a situation which is expected to continue.

In AMPs that include later turn-in dates and protection there should be a beneficial impact on the riparian and open-range areas by reducing utilization during the critical growth period of the plants.

The proposed wildlife developments under the long term would improve habitat for mule deer, with the protection of 824 acres of riparian habitat from livestock and wild horse use.

In the long term, reasonable numbers of mule deer would be achieved through population management by NDOW and habitat management by the BLM.

Bighorn Sheep

Under this alternative further reintroductions of bighorn sheep could continue in the Stillwater, Clan Alpine, and Desatoya mountain ranges both in the short and long term.

The Job Peak prescribed burn could improve habitat in that area by reduction of pinyon pine overstory and increasing grasses. A reintroduction would establish bighorn sheep in the rugged, inaccessible areas (approximately 5%) of the Desatoya Range, but the bighorn sheep will not tend to use the areas where competition exists with livestock (McQuivey, 1978).

In the long term reasonable numbers of bighorn sheep may be reached in the Stillwater and

Desatoya ranges, but not in the Clan Alpine Mountains due to the competition for space with wild horses.

Mountain Lion

Lion populations will increase under this alternative. Increases in mule deer and wild horse (colt) populations would contribute to larger lion populations (Trippensee, 1948).

Sage Grouse

The majority (over 90%) of the sage grouse range is found in Category I allotments in the Clan Alpine and Desatoya Mountain ranges. The discussion of riparian habitats and their improvement along with changes of periods-of-use and wildlife developments would apply for sage grouse also. It could be anticipated that there would be an upward trend in sage grouse populations if competition for forbs could be reduced through riparian protection. Competition for habitat would still exist with grazing animals in unprotected riparian areas.

Sage grouse populations in the wild horse areas may increase slightly, but competition with wild horses will exist in the unprotected riparian areas. The Cherry Valley sage grouse population should increase with the proposed protection of this area from wild horse and livestock use.

Chukar

Chukar populations would increase under this alternative with the further implementation of the Sand Springs and Desert Mountain Habitat Management Plans, which would include development of fifteen additional guzzlers in the area. Improvement in livestock management under this alternative would have little or no effect on the chukar populations.

Fisheries

Under this alternative portions of the Carson River, Horse Creek, Edwards Creek, and Cherry Creek could be protected, and Big Den Creek could be further protected if necessary to maintain and improve the existing fish populations.

Protection of these creeks will prevent or reduce channel widening, channel degradation, reduction in shade cover, loss of terrestrial food supply, increased stream temperature, and reduce addition of sediment (Duff 1980).

WILD HORSES

This alternative would allow wild horse populations to increase 19 percent above that in the No Action alternative.

Development of additional waters, both for livestock and wild horses, would allow for wild horse habitat improvement, which would benefit the wild horses. The wild horse habitat would also improve as the condition and productivity of the vegetation resource improves over the long term (see Vegetation Section).

During gathering operations to maintain population levels, some death or injury to horses would occur due to the behavior of wild horses. Based on past experience, this would amount to about two percent of the horses gathered.

VISUAL RESOURCE MANAGEMENT

Adoption of this alternative would provide high quality senic protection through wilderness designation of 432,257 acres of land.

The majority of this land is rated as Class B, or "above average" in scenic quality. Almost all sites that would be Class A or "outstanding" scenery are included as well.

Range and riparian protection improvements would follow VRM management guidelines. Any of these developments located within an area recommended as wilderness would be designed to blend in with its surroundings on a broad scale.

Disposal of land adjacent to Fallon, Gabbs, and Silver Springs would not affect visual resources since development of those lands is consistent with adjacent land uses.

CULTURAL RESOURCES

Protection of 432,257 acres of wilderness would also provide protection to any cultural sites found within those areas.

This alternative would protect the greatest number of sites of any alternative from pothunting and vandalism, which is usually connected with easy vehicular access.

Sale of 2100 acres of land and development of range improvements would be mitigated under normal cultural resource protection measures.

Prescribed burning of 2000 acres of pinyon/juniper may expose cultural sites that have been hidden by trees until this point. This would allow these sites to be noted and analyzed by Bureau archaeologists.

RECREATION

Recreation use would increase by 9299 visitor days in the long term.

Maximizing the number of areas recommended for wilderness designation would also maximize the number of backcountry visitor use days that would occur within those areas. These visits would be related to such traditional wilderness uses as camping, hiking, horseback riding, and photography. Total visitor use days should increase from the present 2951/year to 10,801/year within a 20 year period. This represents a 366 percent increase in use of the areas (Appendix H).

Since big game numbers are expected to double under this alternative, it is reasonable to assume that the number of permits will also double. This would provide an increase of 390 hunter days/year for a total of 2351 hunter days/year. A good portion of this use would occur within the WSAs.

Reintroduction of bighorn sheep and Lahontan cutthroat trout into their historic habitat would create additional hunting and fishing use in those areas over the long term, once populations are established and stabilized.

Across the rest of the resource area, recreation numbers would be stable. Random ORV use of the area would probably increase from 2200 at present to 3259 in 20 years (Appendix H).

Competitive ORV use would also be stable in the short term and would increase in the long term at the same rate. None of the proposals made under this alternative would affect the two major recreation uses, competitive ORV use and interpretive sightseeing.

LIVESTOCK GRAZING

In the long term, livestock use is projected to be 47,382 AUMs, or a 26 percent decrease.

Initially, livestock would be licensed at the level of 46,696 AUMs. This is a reduction of 17,543 AUMs (27 percent) from the current three-year average use level of 64,239 AUMs. This reduction is the result of providing forage for increases in the numbers of wild horses, reasonable numbers of big game, bighorn sheep reintroductions, and three months rest from spring grazing use by livestock.

Allotment Management Plans (AMPs) would be developed for Category I allotments and where needed for Category M and C allotments. This would provide more uniform patterns of utilization. Implementations of AMPs could cause the permittees to move their livestock several times during the year resulting in increased labor requirements.

The construction of structural range improvements would be required to implement grazing sytems within AMPs, and could range from permittee furnished labor and materials to BLM contracted installations (Table 2-1).

Allotment management plans and their associated range improvements, consisting of allotment boundary and cross fencing, additional or improved water sources, and a small amount of brush control, would improve livestock distribution with a measurable increase in forage production as indicated in the vegetation section. This would allow a projected increase from the initial short term preference level of 1490 AUMs or three percent.

Loss of livestock grazing may occur within nine allotments requiring protection of vegetation in specified riparian zones and springs. This amounts to a minor loss of 804 AUMs which represents two percent of the RMP area (Appendix L, Table 1).

Within those lands that have been considered for disposal, only 588 acres presently being grazed will be affected. These acres surround the community of Gabbs and are in the Eastgate allotment. This loss amounts to 43 AUMs (Appendix L, Table 1).

In summary, the net long term result of these impacts is projected to be a loss of 16,857 AUMs (26 percent of the three-year average) in livestock use.

Wilderness designation of 432,257 acres may result in restricting vehicle use and construction of some range improvements which would limit livestock management opportunities. Maintenance of some existing range improvements and salting presently being done with vehicles may have to be accomplished by horse back and/or on foot. This would cause additional labor and expense for the affected permittees.

GEOLOGY, ENERGY, AND MINERALS

Energy and mineral exploration and development would be precluded or constrained on 432,257 acres.

Approximately 432,557 acres, or all of the lands under wilderness study, may be designated as wilderness and managed in accordance with the Wilderness Act of 1964. As provided in the Act, these designated lands, after December 31, 1983, would be segregated against appropriation under the mining laws, and from disposition under the mineral leasing laws and other mineral disposal authorities subject to valid existing rights. Since the subject wilderness areas would be designated after December 31, 1983, no new mining claims, mineral leases, or material disposals would be allowed. Only pre-designation leases and valid mining claims would have the necessary rights to conduct energy and mineral operations. In addition, these operations together with prospecting activities may be constrained by stricter reclamation standards and more costly operating methods than would be required on non-wilderness public lands.

Leasing operations on existing pre-FLPMA leases (leases taken before October 21, 1976) will be permitted under standard stipulations.

On post-FLPMA leases, those issued before January 1, 1983, operations will continue to be subject to the wilderness stipulation which requires that operations be nonimpairing. After Congress acts, holders of leases in designated wilderness areas could continue to operate until the remaining term of the lease expires, subject to lease stipulations (USDI, IM 83-237, 1983).

Other than operations on pre-designation claims and leases, the lands within a designated wilderness areas would be unavailable for mineral development.

In summary, the impacts ot the geology, energy, and minerals resources resulting from wilderness designation are: 1) segregation of public lands against appropriation or disposition under the mining laws, mineral leasing laws, and other mineral disposal authorities, 2) constrained energy and minerals operations on pre-designation leases and valid mining claims, 3) constrained prospecting activities on unappropriated lands, and 4) the preclusion of energy and mineral developments on newly discovered deposits.

The following will outline the specific impacts to geology, energy, and minerals within each WSA.

Clan Alpine Mountains

One hundred ninety-six thousand one hundred twenty-eight (196,128) acres of public land woul be withdrawn from mineral entry. Nine thousand twenty (9,020) acres encumbered by 451 mining claims, 5,800 acres under geothermal lease, and 118,000 acres under oil and gas lease would be affected.

One hundred ninety-one thousand six hundred (191,600) acres of lands designated as having moderate favorability and 3,100 acres of lands designated as having high favorability for the occurrence of metallic minerals would be withdrawn. These lands include the north trending belt of structurally complex Mesozoic sedimentary rocks exposed in the central region of the Clan Alpine Mountains. The Bernice mining district is located at the north end of this feature and the Tungsten Mountain mine area is located at the south end. The intervening area has been designated as moderate to high in favorability for metallic minerals and geothermal resources (USDI, BLM Great Basin GEM, 1983).

This alternative would constrain exploration and development in the Bernice/Hoyt Canyon area, Dyer Canyon, Stoney Canyon, Florence Canyon, and Tungsten Mountain areas.

One hundred ninety thousand and eight hundred (190,800) acres of lands designated as having moderate favorability for geothermal resources and 5,304 acres of lands designated as having high favorability for geothermal resources would be withdrawn (USDI, BLM Great Basin GEM, 1983).

Stillwater Range

Ninety-four thousand six hundred and seven (94,607) acres of public land would be withdrawn from mineral entry. Eleven thousand eight hundred and forty (11,840) acres, encumbered by 592 mining claims, 11,000 acres under geothermal lease (GEO. LS.) and 18,000 acres under oil and gas lease (O.& G. LS.) would be affected.

Eighty-seven thousand (87,000) acres of lands designated as having moderate favorability (MOD. FAV./MET.) and 2,100 acres of lands designated as having high favorability (HIGH FAV./ MET.) for the occurrence of metallic minerals would be withdrawn (USDI, BLM Great Basin GEM, 1983). This alternative would constrain exploration and proposed mining in Fondaway Canyon, Cox Canyon, White Cloud Canyon, Mississippi/Hare Canyons, and the Dixie Comstock area (Akright, 1983; Metzger, 1983; Vickre, 1983).

Sixty-seven thousand seven hundred (67,700) acres of lands designated as having moderate favorability (MOD. FAV./GEO.) and 29,900 acres designated as having high favorability (HIGH FAV./GEO.) for the occurrence of geothermal resource would be withdrawn (USDI, BLM Great Basin GEM, 1983). This alternative would constrain exploration and development activities for Thermal Power Company's geothermal prospect in the Dixie Comstock area.

Sixteen thousand five hundred (16,500) acres of lands designated as having moderate favorability for the occurrence of oil and gas would be withdrawn (USDI, BLM Great Basin GEM, 1983).

Desatoya Mountains

Fifty-one thousand two hundred and sixty-two (51,262) acres of public land would be withdrawn from mineral entry. Twenty one hundred (2,100) acres of lands under oil and gas lease would be affected. Thirteen thousand acres of land designated as having moderate favorability for the occurrence of metallic minerals and geothermal resources will be withdrawn (USDI, BLM Great Basin GEM, 1983). A 40 acre material site right-of-way would be affected.

Job Peak

Ninety thousand two hundred nine (90,209) acres of public land would be withdrawn from mineral entry. Four thousand seven hundred (4,700) acres, encumbered by 235 mining claims, 15,200 acres under geothermal lease, and 9,800 acres under oil and gas lease would be affected.

Eighty-five thousand two hundred (85,200) acres of lands designated as having moderate favorability for the occurrence of metallic minerals would be withdrawn. This alternative would constrain exploration in the Poco/Job Canyon area (Tatkin, 1983).

Fifty-one thousand two hundred (51,200) acres of lands designated as having moderate favorability and 39,000 acres as having high favorability for the occurrence of geothermal resources would be withdrawn. This alternative would constrain geothermal exploration in the Eleven Mile Canyon/Pirouette Mountain prospect areas.

Twenty-four thousand (24,000) acres of lands designated as having moderate favorability for the occurrence of oil and gas would be withdrawn (USDI, BLM Great Basin GEM, 1983).

Lands Disposal

The impacts to geology, energy and minerals from land disposals associated with this alternative, would be the same as in the No Action alternative.

FORESTRY

The potential for harvesting 434 cords per year would be foregone.

Adoption of this alternative would have a sizable impact on the forestry resource within the RMP area. Approximately 13,090 acres of harvestable pinyon/juniper woodland would be removed from the annual allowable cut base for the area. Although this would have virtually no effect on family woodcutters, the commercial woodcutting potential would be decreased considerably. Family woodcutters are presently harvesting firewood in the area at a rate of 500 cords/year. Over the long term this consumption would rise to around 625 cords/year, which would still be met by woodland located outside the four WSAs. However, the annual allowable cut for the entire RMP area is estimated to be 1234 cords/year. This leaves an immediate potential commercial cordwood harvest of 734 cords/year in the short term and 609 cords/year in the long term. If this alternative is adopted this potential is reduced to 300 cords/year in the short term and 175 cords/year over both the long and short term.

WILDERNESS

Wilderness values would be protected on 432,257 acres, and all of this acreage would be added to the National Wilderness Preservation System (NWPS). The natural character of these lands and the opportunity to experience solitude and/or primitive and unconfined recreation in a natural setting within the boundaries of the four WSAs would be preserved. A description of the wilderness values that would be protected within these areas is contained in Chapter Three and in the Lahontan Resource Area Wilderness Technical Report (USDI, BLM, 1983).

Designation of these study areas would expand the ecosystem diversity of the NWPS as well as expand opportunities for primitive and unconfined recreation within a day's drive of the Reno and Sacramento Standard Metropolitan Statistical Areas.

Designation would serve, in general, to protect the wilderness values of the four areas from the impacts of mineral and energy exploration and development, woodland product harvest, range development, and casual road building associated with some types of recreation.

Protection of riparian areas and matching grazing use with capacity through monitoring and adjusting livestock and wild horse use would have a beneficial impact on wilderness values by enhancing the naturalness of the vegetation.

Managing big game habitat to provide adequate vegetation to support reasonable numbers of mule deer and bighorn sheep would be a positive impact on wilderness values, as it could help restore a valuable component of the ecosystem to its long term average production.

Reintroduction of Desert Bighorn sheep and Lahontan cutthroat trout would have a beneficial impact upon wilderness values by restoring native species to their historic habitat, thus enhancing naturalness and recreational opportunities in WSAs where reintroductions take place.

Clan Alpine Mountains

In this alternative the entire 196,128 acres in the WSA would receive protection, thus ensuring the wilderness integrity of the area as a whole. It would not, however, prevent some negative impacts that are expected to affect the wilderness resource even with designation.

Mining development is likely to occur around Hoyt, Bernice, Dyer, Stone, and Florence Canyons, and possibly atop Mount Grant, but only where a valid discovery occurs on a claim located prior to designation. Impacts may also occur on pre-designation leases. Loss of opportunities for solitude would be a temporary, short term impact of mining. A permanent loss of naturalness is inevitable in those areas experiencing this activity. Although it is unlikely that the scale of operations in any of these locations would be sufficient to permanently destroy the wilderness values of the entire area, it should be noted that full scale development of valid claims around Mount Grant would take place in the heart of the area and be visible from several miles away. Some outside sights and sounds from vehiclular use of cherrystemmed routes and overflights by Navy aircraft would result in localized impacts to solitude.

Certain portions of the WSA would require extensive management efforts to ensure compliance with the Wilderness Management Policy. This is primarily a factor in the south end of the study area where unathorized woodcutting is likely to occur, especially in view of the historic use of that area for this activity. Off-road vehicle use may be difficult to control along the benches on both the east and west sides of the unit and near cherrystem roads, particularly those that extend some distance into the WSA and which have ways associated with them.

Stillwater Range

With designation of the entire 94,607 acre Stillwater Range WSA as wilderness, the wilderness values of the area would receive protection to the greatest extent possible. The naturalness of the area would benefit most from designation while solitude would still be somewhat impacted by the outside sights and sounds of nearby mining, geothermal activity, and overflights by Naval aircraft.

Mining activity is likely to continue along the boundary in the south and northeast as well as along the west side, though it may extend inside the area only where a valid discovery was made on a claim located prior to designation. Depending upon the number of such claims and the scale of operations involved, impacts upon wilderness values in these areas, particularly along the west side, could be extensive.

Unless private lands in the northwest and the northeast are acquired or exchanged for lands elsewhere, impacts upon naturalness and solitude could occur as a result of a private landowner exercising his right to gain access to his land, and possibly developing it such that the impacts may be seen and heard inside the wilderness area.

Off-road vehicle use could be difficult to control along the fans on both the east and west sides of the unit, and could be detrimental to naturalness and solitude in these areas.

Desatoya Mountains

With its entire acreage of 51,262 acres designated as wilderness, the Desatoya Mountains WSA would be given almost complete protection. An additional 51 acres would be added to the WSA along Campbell Creek in order to enhance manageability, thus increasing the total size of the WSA to 51,313 acres.

There are no mining claims in the area and the only private inholdings have access via a cherrystemmed road. Use from ORVs could present some manageability problems along the east side and on the far north end of the WSA where the terrain is more open. These problems would be associated primarily with ways, leading off of boundary or cherrystem roads, which would be closed after designation.

Some outside sights and sounds from vehicular use of cherrystemmed routes and occasional overflights by Navy aircraft would result in localized impacts on solitude.

The area is considered to be manageable over the long term and, under this alternative, there would be fewer conflicts in protecting wilderness values in this WSA than in any of the other three study areas.

Job Peak

Under this alternative all 90,209 acres of the Job Peak WSA would be designated as wilderness and the wilderness values of the area as a whole would be protected.

Some limited impairment of wilderness values could still occur. Mining activity has been minimal so far and would be limited after designation to those claims which could show a valid discovery. It is unlikely that the scale of operations in any of the three primary areas where claims are located would be sufficient to eliminate the wilderness values of the entire study area, however, impact upon these values would be most severe should they occur around Table Mountain which lies close to the center of the WSA (Lahontan Wilderness Tech. Rpt., 1983).

Outside sights and sounds from overflights by Navy aircraft, possible geothermal development in Dixie Valley, and vehicular use of cherrystemmed routes would result in localized impacts to solitude.

Use by ORVs may be difficult to control along the alluvial fans, particularly on the east side of the study area where the terrain is more open and easily traversed. Continued use of cherrystemmed roads, especially in the northwest where there are several in close proximity, would create minor impacts on solitude and apparent naturalness in the surrounding areas.

LANDS

A total of 2,100 acres of public land could be transferred to other ownership.

The transfer from federal ownership of 2,100 acres of land designated as suitable for disposal would result in more efficient management of the lands resource, both by the public and the private sector. This is because those lands identified for transfer are mostly scattered tracts and checkerboard lands. Such land patterns usually have legal access problems and are more susceptible to trespass situations due to the complexity of property boundaries. Transfer would reduce these situations. These lands would provide for community expansion.

ECONOMIC CONDITIONS

Regional income would decline by $554,000 in the long term.

Economic Structure

Cumulative economic impacts from this alternative would result in changes in the area's economic structure. Input-Output analysis indicates a net decrease in income of $554,000 and a net decrease in employment of 61 jobs. This represents less than one percent of Churchill County income and about one percent of Churchill County employment, respectively. Major losses to the livestock sector would be partially offset by minor increases in the trade and services sector as outlined below.

Tax and Fiscal Structure

If 2100 acres of public lands are sold under this alternative, property tax revenues could have a minor increase as outlined in the following table.

ESTIMATED TAX REVENUE IMPACTS
Resource protection Alternative

	Change in Revenues	Percent of Current Property Taxes
Churchill County	$ 2000	1%
Lyon County	900	<1%
Nye County	1300	<1%
Total	$ 4200	<1%

Source: Appendix K.

There would be no changes in Payments in Lieu of Taxes from this alternative.

The market price of lands for private properties adjacent to the proposed disposal areas could decrease due to the increase in the supply of lands through the disposal process. This could, in turn, decrease assessed values from those properties - which would partially offset the increase in revenues outlined above, however this cannot be quantified due to lack of data.

County expenditures would increase as a result of the land disposal process because services would have to be provided to the new private lands. This cannot be quantified due to lack of data. Provision of these services to new areas is likely to be less efficient than currently occurs because the cost of services is generally greater in outlying areas than in current communities.

Resource Industries

Livestock Ranching

In the short term, as indicated in the livestock section, there would be severe reductions in livestock use due to increased wild horse use, provision for reasonable numbers of wildlife, and deferrment of grazing during the spring. Linear Programming analysis indicates that this would result in major income losses to public land ranches and the livestock sector as indicated in the following table.

SHORT TERM ECONOMIC IMPACTS[1/]
Resource Protection Alternative

	Annual Income (% Change)	Employment (% Change)
Yearlong Use Ranch	$ -11,000 (69%)	N/A
Winter Use Ranch	- 1,000 (13%)	N/A
Livestock Sector[2/]	-173,000 (29%)	19 (29%)
Regional[3/]	-622,000 (<1%)	67 (1%)

1/ Change from current levels.
2/ Percent of current income and employment from public land ranches.
3/ Includes multiplier effect.

Note: Methodology outlined in Appendix K.

In the long term, as indicated in the livestock section, there would be an increase in grazing capacity from the short term. The increase in income projected to occur from the additional grazing capacity would be partially offset by potential loss of capacity due to riparian protection and potential increased costs of operation in wilderness areas (seven cents per AUM as outlined in Appendix K). The net effect would be an increase from the short term in annual income to the livestock sector of $8,000, and an increase of one job (one percent of current income and employment, respectively).

However, as indicated in the following table, this would not be nearly enough to offset the short term reductions and severe economic losses would continue.

LONG TERM ECONOMIC IMPACTS[1/]
Resource Protection Alternative

	Annual Income (% Change)	Employment (% Change)
Yearlong Use Ranch	$ -10,000 (63%)	N/A
Winter Use Ranch	- 1,000 (13%)	N/A
Livestock Sector[2/]	-165,000 (28%)	-18 (28%)
Regional[3/]	-594,000 (<1%)	-64 (1%)

1/ Change from current levels.
2/ Percent of current income from public land ranches.
3/ Includes multiplier effect.

Note: Methodology outlined in Appendix K.

There would be a major decline in the capital value of the grazing allotments due primarily to the loss in initial grazing capacity but also because of wilderness designation (Appendix K). This would be partially offset due to increased vegetative production in the long term. The net effect would be a decline of $1.2 million or 39 percent of current value.

Recreation

This alternative would result in a minor increase in the area's recreation related business through increases in spending by recreationists for big game hunting and backcountry recreation. The projected increase in recreation use of 9,299 days (Recreation Section) would result in an increase in annual regional income of $40,000 including the multiplier effect and an increase of three jobs (Appendix K). This amounts to less than one percent of current regional income and employment, respectively.

Mining

The opportunity for increased mineral and energy production on those acres designated for wilderness would be foregone under this alternative as outlined in the Minerals section. This cannot be quantified due to lack of data. In addition, operating costs on pre-designation leases and valid mining claims could increase due to constraints imposed by wilderness designation.

Although it is unlikely that all acres in areas recommended for wilderness would be leased, a potential for $700,000 in increased annual geothermal and oil and gas lease revenues would be foregone.

Forest Products

The opportunity for increased commercial cordwood harvesting on 13,090 acres of woodlands would be foregone under this alternative. The annual allowable cut foregone would have a stumpage value of $2,000.

SOCIAL CONDITIONS

This alternative would result in a major disruption of the local ranching community.

Grazing reductions would be particularly objectionable to the ranching sector since those reductions would be implemented in order to provide enough forage to manage for reasonable numbers of mule deer and bighorn sheep (3201 AUMs) and 2610 head of wild horses (31,320 AUMs). These reductions, coupled with deferring grazing for three months in the spring would severely impact the ranching sector. Their material welfare would be severely impacted as a result of reduced property values, increased difficulty in obtaining loans, less income, and increased costs of providing alternative feed sources during the three months in the spring in which grazing would be deferred. The possibility exists that one or more of the ranchers would go out of business and be subjected to stresses of changing lifestyles, occupations, and places of residence.

The implementation of this alternative would probably also generate further controversy, misunderstanding, and conflict between the ranching sector and BLM. The controversy would probably include the quality and validity of the range data on which BLM determined that AUM reductions or changes in periods-of-use were justified. If this alternative were to be implemented, the ranching community could be expected to mobilize and be highly committed to use their political and legal resources to protect their interests and avoid losses.

Improving or maintaining in good or better condition selected aquatic and riparian areas, wetlands, meadows, springs, and aspen groves within wildlife habitat management plan and allotment management plan areas would be supported by some individuals and interest groups who are hunting, fishing, recreational, or environmental protection oriented. Similar perceptions would probably also be held by those individuals and interest groups who support the continued presence of wild horses at increased levels on public lands. Other members of these same organizations could be expected to oppose the implementation of this alternative, because while they favor improvement in wildlife and riparian habitat and could be expected to support the reintroduction of bighorn sheep and increased numbers of wild horses, they would not want these improvements to occur primarily as a result of AUM reductions being imposed on the livestock sector.

This alternative would withdraw all four wilderness study areas from appropriation under the mining laws on the date of designation as wilderness, unless otherwise provided for in the enacting legislation as well as constrain operation on pre-designation leases and existing valid claims. This would be viewed negatively by the mining sector. The opportunities foregone for the individuals as well as for the community could be substantial. This cannot be quantified due to a lack of data.

Designation of all four WSAs as wilderness would not introduce new people into the area permanently in any significant numbers nor would designation cause residents to leave in any significant numbers. Although designation may increase jobs in the trade and service sectors, those jobs would be in the same sectors and basically the same occupations as existing jobs. Designation would not provide significant employment opportunities for the underemployed or unemployed, nor would it create new jobs in different wage structures or create jobs for particular employee groups in large numbers.

Implementation of the Resource Protection (all wilderness) alternative would place additional regulatory constraints on the use of motorized equipment as well as placing constraints on other activities within wilderness areas. This may be viewed as a negative impact by many area residents, particularly those who enjoy off-road vehicle recreational activities in remote, pristine areas.

Opposition to the implementation of this alternative could be expected from the livestock sector. Opposition would probably center around the issue of regulatory constraints and increased costs and limitations on future range improvements.

For those individuals who view the federal presence in the resource area negatively, the implementaiton of this alternative would be seen as tightening the federal grip on local lands to the detriment of local residents. These individuals view the wilderness program as a program that either prohibits or places unwarranted constraints on the historic and traditional multiple-use activities that have been allowed on public lands. For these individuals, the implementation of this alternative would reinforce their negative perception of the Bureau of Land Management.

Transferring out of public ownership 2100 acres of isolated tracts of land near the communities of Fallon, Silver Springs, and Gabbs would be viewed positively by many area and community residents, beneficial impacts could occur by reducing federal land holdings in the area and providing opportunities for those lands to pass into either private, state, or community ownership. To some extent, those land disposals could mitigate the feeling of community residents that their communities are "land locked" as a result of bordering federal lands. From the point of view of community, county, or state fiscal resources, the disposal of these lands could be a beneficial impact as a result of adding some or all of those lands to the public tax rolls. Should any large scale community development occur as a result of the proposed land disposals adjacent to these communities, the cost of extending community services to those tracts may be considerably higher than the return from the tax rolls.

Local Community

As a result of livestock grazing reductions, the implementation of this alternative would probably result in decreases in the viability and stability of the local community due to lifestyle changes, alterations of long-standing friendships, and interactional patterns with the possible emigration of some ranchers.

Designation of all four Wilderness Study Areas as suitable would probably further strain relationships between BLM and many local residents. At the local level, opposition could be expected from both the mining and ranching sectors. However, it is not expected that new community coalitions would form as a result of implementing this alternative. Opposition could be expected to follow established community patterns.

If ownership were to pass from federal to private as a result of the proposed disposal of 2100 acres of isolated tracts of land, this would probably be viewed as a positive impact by area residents. If the majority of those disposals passed into private, non-resident ownership, those disposals may be viewed negatively by many of these same residents.

Regional and National Communities

Opposition could be expected from those regional and national interest groups who actively support the livestock and mining industries. It could be expected that other regional and national groups concerned with wildlife, wilderness, primitive recreation and environmental protection would consider the implementation of this alternative as having beneficial impacts of varying degrees.

MID-RANGE ALTERNATIVE

SOILS

Erosion problems would continue on three of the seven identified specific problem areas.

Overall, the soils resource should remain in its present stable condition under the mid-range alternative. Average sediment yield for the RMP area would remain at 1.1 tons/acre/year during the short term (five years), decreasing slightly towards 1.0 tons/acre/year as the AMP/grazing management systems begin to affect distribution patterns in the long term (Appendix C). Protection of riparian habitat at Edwards, Horse, and Cherry Creeks would help stabilize those areas with respect to further channel and gulley erosion. However, channel erosion on Middlegate Creek would continue to increase, as would accelerated wind erosion in Dixie Valley Wash and in the lower Bench Creek area. Wilderness designations on 268,864 in the Clan Alpine, Stillwater, and Desatoya Mountains would result in less mineral exploration, mining operations, and ORV use, and therefore less surface disturbance and sediment yield.

WATER RESOURCES

There would be a minor improvement in water distribution. Overall water quality would improve.

Water Quantity

Under this alternative, distribution of water for livestock would remain the same as in the Resource Protection alternative. Water distribution for wildlife would also improve in the Sand Spring and Desert Mountain HMP areas with the installation of seven guzzlers.

Water Quality

A long term improvement in water quality is anticipated for the 65 springs and 6 streams (30 miles) protected under this alternative. All other sources would continue their current water quality trend. Streams and springs indicated by the 1980 BLM water quality sampling and analysis as exceeding the State criteria for wildlife propagation and acquatic life would be protected under this alternative and should improve. Sediment problems in Middlegate Creek would continue under this alternative. Wilderness designations under this alternative would provide increased protection for about 22 miles of perennial streams and 330 springs from impacts by excluded surface disturbing activities (does not include areas in Lander Conty).

VEGETATION

Overall, 44 percent and 56 percent of the planning area would have upward and static trend, respectively. Ecological and forage condition would improve two percent and less than one percent, respectively. Vegetative production would increase two percent overall, and vegetation treatments would result in a net increase of 365 AUMs.

General

The improvement in vegetation condition, trend, and productivity in all Category I allotments would be due to the implementation of AMPs and grazing systems, range improvements, proper utilization, and improved grazing distribution.

The continued improvement in the above mentioned vegetation characteristics in the Category M (Bass Flat, Desert Mountain, Lahontan and Phillips Well) allotments would largely be due to moderate levels of utilization, proper periods-of-use, and grazing distribution. These actions would result in benefits and impacts as discussed in this section of the Resource Protection alternative.

Vegetation trend and condition would improve in all Category I allotments. However, repeated grazing use during critical growth periods would continue in some Category I allotments where sizable wild horse populations occur. The increase of desirable, highly palatable plant species in the vegetation communities would be suppressed by the continuous and repeated grazing use during critical growth periods and the beneficial effects of the proposed management actions would be reduced (Trlica et al, 1971; Pearson, 1964; Cook, 1966; Tueller, 1966).

Trend

In the short term, vegetation trend should improve in all Category I allotments and a few Category M allotments, but in a minimal, unmeasurable degree. In the long term, however, the Dixie Valley allotment would measurably improve from downward to upward trend while the other Category I allotments would show a more rapid improvement from static to upward trend. The present upward trend would be maintained in the Bass Flat, Desert Mountain, Lahontan, and Phillips Well Allotments. The present static trend would be maintained on the remaining Category M and C allotments.

Approximately 44 percent of the planning area would have upward trend and 56 percent would have static trend (based on the acres having vegetation condition following land disposal) (Appendix G Part 1, and Table 4-3).

Condition

This alternative proposes the disposal of 114,680 acres of public land within grazing allotments. Approximately 90 percent of these acres are in either poor or fair ecological condition, and 75 percent have low potential. This means that the relative degree of improvement possible on the remaining acres is somewhat greater.

The improvement in grazing management would encourage improvement in vegetation condition in all Category I allotments. Such condition improvements would also continue in the Category M allotments mentioned above. Table 4-3 depicts the projected changes in vegetation condition for each allotment. In summary, those allotments having upward trend would have the following improvement in ecological condition on the public land remaining after land disposal: 1) excellent condition would increase 10,961 acres (one percent of the acres for which condition has been determined); 2) good condition would increase 18,511 acres (one percent); 3) fair condition would decrease 16,272 acres (one percent); and 4) poor condition would decrease 13,200 acres (one percent). Similar changes in forage condition would occur on the remaining public land with the following results: 1) excellent condition would increase 1368 acres; 2) good condition would increase 214 acres; 3) fair condition would increase 4979 acres; and 4) poor condition would decrease 6561 acres (Appendix G, Part 1).

Vegetation treatments would improve 978 and 1000 acres from the low fair (mid seral) ecological condition class to the high good and the excellent forage condition classes, respectively. Also, 982 acres would be improved from fair to excellent forage condition (Appendix G, Part 3).

Productivity

Increased vegetative productivity would result from the improved vegetation condition and vegetation treatments. In the Category I allotments the degree of improvement in productivity would range from four percent in the Copper Kettle allotment to seven percent in the Dixie Valley allotment. In the Category M allotments the degree of improvement would range from two percent in the Desert Mountain and Phillips Well allotments to four percent in the Bass Flat and Lahontan allotments. Overall, vegetative productivity would increase two percent due to improved vegetation condition (Appendix G, Part 2 and Appendix L, Table 2).

Range Improvements

Direct impacts of other range improvements (e.g.; pipelines, tanks, troughs and fences) to vegetation condition, trend, and production would be the same as those discussed in the range improvements section of the Resource Protection alternative.

The areas proposed for seedings or brush control have moderate potential, poor or fair ecological condition, and big sagebrush aspect. Conversions of these areas to vegetation communities of introduced grassland species would result in an approximate net increase of 365 AUMs within five years (Appendix G, Part 3). This increase would, in the long term, decrease early spring grazing intensity on native range and allow improvement in ecological condition and trend. This would be of particular benefit in the Clan Alpine and Dixie Valley allotments.

Riparian and Aspen Communities

In the long term the condition of riparian and aspen communities would stabilize or improve.

Under this alternative the short term overutilization of riparian and aspen communities would continue, with the exception of 449 protected acres.

TABLE 4-3
PROJECTED VEGETATION CONDITION
MID-RANGE ALTERNATIVE

ALLOTMENT NAME	ECOLOGICAL CONDITION				FORAGE CONDITION 1/				DISPOSED LANDS 2/			
	POOR	FAIR	GOOD	EXCELLENT	POOR	FAIR	GOOD	EXCELLENT	POOR	FAIR	GOOD	EXCELLENT
Adriance Valley	2,044	29,290							278	119		
Bass Flat	5,452	20,223	15,536	1,084								
Bell Flat	3,235	63,034	21,565	749	1,238				92	1,235	216	
Boyer Ranch	13,388	44,843	21,295		12,373				4,196	2,139	1,725	
Bucky O'Neill	0	12,269	19,159									
Churchill Butte	531	6,580	2,348							67	17	
Clan Alpine	8,210	106,216	75,528	6,032	50,885	8,957	4,424	1,165	789	11,493	2,111	
Cleaver Peak	784	16,156	19,942									
Clifton Flat	518	6,845	0									
Copper Kettle	2,046	17,963	14,753	748	8,998	946	25		842	6,672	20	
Cow Canyon	38,759	37,779	4,422	158	22,849	1,202			3,038	1,060		
Deadhorse Well	1,845	39,401	29,846	210								
Desert Mtn.	212	8,970	10,000	923								
Dixie, Hare, Miss.	81,456	121,710	12,577	288	30,558	3,692	3,976	1,203	5,197	6,105	1,235	
Eastgate	17,299	152,273	92,419	5,865	2,721	13,846	3,239		2,648	6,293	2,057	19
Edwards Creek	1,241	23,103	14,686	4,496	10,150	3,075	134					
Fort Churchill	1,441	12,569	422									
Frenchman Flat	0	36,324	30,165									
Hole-in-the-Wall	43,074	34,819	4,343	243	1,257	66						
Horse Mtn.	1,090	29,939	26,991									
Horse Springs	1,829	7,509	400		344				2,449	2,417		
LaBeau Flat	15,427	76,278	41,741		917							
Lahontan	5,792	21,491	12,755	1,117					582	3,468	2,683	61
Mtn. Well/La Plata	10,549	65,888	51,459	354	1,297	3,100						
Phillips Well	651	14,293	23,814	2,164								
Rock Springs	545	8,692	7,871									
Salt Wells	1,216	16,232	29,978									
Stockton Flat	2,172	5,473							29	1,553		
Truckee/Virginia									1,690	18,484	486	
White Cloud	12,243	31,024	8,938		10,840	233						
TOTAL	273,049	1,067,186	592,953	24,431	154,427	35,117	11,798	2,368	21,830	61,105	10,550	80

1/ Woodlands and seedings

2/ Does not include 21,115 acres of unclassified disposal lands.

Note: No analysis of the New Pass unit of the Mt. Airy allotment (Battle Mountain District) within the Lahontan RMP area (4328 acres) has been prepared due to lack of data. This allotment is included in the Shoshone-Eureka RMP prepared by the Battle Mountain District.

Source: Methodology for Predicting Shift in Condition, Carson City District, Nevada 1982 (Appendix G, Part 1).

In the long term with the implementation of grazing systems and protection of a portion of the currently overutilized riparian habitat (449 acres) vegetation condition would improve or stabilize. Plant species diversity, cover, and production would improve resulting in increased streambank stability, sediment control, and improved habitat for all wildlife and grazing animals (Dahlem, 1979 and Duff, 1980).

Grazing animals would continue to overutilize the more palatable vegetation available in riparian areas before making any major use of the vegetation in the uplands. Thus, the ecological condition of unprotected riparian habitat is not expected to improve, and impacts from grazing on unprotected riparian habitat are expected to continue in all allotments (Dahlem, 1979 and Behnke and Raleigh, 1978).

Proposed seedings and implementation of grazing systems are expected to improve ecological condition over time. Plant species composition, production and cover would improve in all areas, thereby reducing grazing pressure on aspen reproduction resulting in increased production (Dahlem, 1979). Coles (1965) reported that sufficient forage for the number of grazing animals would prevent serious damage to aspen reproduction. Use by livestock results in damage to aspen reproduction only where herbacious forage is insufficient to support the number of livestock. Thus, intensive management including adjustments in grazing intensity, grazing systems, adjustments in periods-of-use, and range improvements, would result in improved aspen root sucker survival and the perpetuation of existing aspen stands (Coles, 1965). The rate of improvement in the ecological condition of aspen sites would be expected to parallel the rate of improvement in ecological condition of all other ecological sites.

WILDLIFE

Overall, wildlife habitat would improve in the long term.

Competition would continue between mule deer, wild horses, and livestock. In the short term the impacts would be the same as outlined under the No Action alternative.

Wilderness designation would protect wildlife habitat by preventing degradation and loss from surface disturbing activity.

Mule Deer

As indicated in Chapter Three, most of the mule deer habitat in the RMP area consists of low quality browse - a situation which is expected to continue.

In AMPs that include later turn-in dates in the Category I allotments, there should be an improvement in the riparian and open-range areas by reducing utilization during the critical growth period of the plants.

The proposed wildlife developments under the long term would improve habitat for mule deer, with the protection of 449 acres of riparian areas from livestock and wild horse use. In the long term, changes in periods-of-use and the proposed improvements would result in an upward trend toward reasonable numbers would occur with concurrent population management by NDOW.

Bighorn Sheep

Under this alternative further introductions of bighorn sheep could occur in the Stillwater, Clan Alpine and Desatoya Mountain Ranges. However, maintaining wild horses at their current level under this alternative would reduce the suitable areas within the Clan Alpine range for reintroductions (McQuivey, 1978).

A reintroduction into the Desatoya Mountain Range would establish bighorn sheep in the rugged and inaccessible areas but the sheep would tend not to use areas where competition exists with livestock (McQuivey, 1978). Wilderness designation would give added protection to bighorn sheep habitat. There would be no change in the Job Peak area from the No Action alternative.

Mountain Lion

An increase in mule deer numbers under this alternative would contribute to a small but corresponding long term increase in the mountain lion populations.

Sage Grouse

As discussed under the Resource Protection alternative, the majority of the sage grouse range is found in the Category I allotments in the Clan Alpine and Desatoya Mountain Ranges. The discussion of riparian habitats and their improvement with changes of periods-of-use and wildlife developments would apply for sage grouse also. It could be anticipated that there would be an upward trend in sage grouse populations where competition for forbs could be reduced through riparian protection. Competition for habitat components would still exist with grazing animals in unprotected riparian areas.

Chukar

Chukar populations would increase under this alternative with the further implementation of the Sand Springs and Desert Mountain Habitat Management Plans, which would include development of seven additional guzzlers in the area. Improvement in livestock management under this alternative would have little or no effect on the chukar populations.

Nongame Birds and Raptors

In those allotments where changes in periods-of-use are implemented, an increase would occur in the nongame populations associated with riparian areas (refer to Mule Deer). Grazing animals would continue to impact the riparian areas with a corresponding effect on the nongame bird populations. No impact under this alternative is anticipated for prairie falcons and golden eagles since their predominant use is concentrated in the livestock winter areas and where no wild horse populations occur.

Fisheries

Under this alternative portions of the Carson River, Horse Creek, Edwards Creek, and Cherry Creek would be protected, and Big Den Creek would be further protected if necessary to maintain and improve the existing fish populations.

The proposed wildlife developments under the long term would eliminate all impacts to fisheries habitat through the protection of the streams from livestock and wild horse use as discussed in the Resource Protection alternative (Table 2-2).

WILD HORSES

There would initially be no change to wild horse population levels.

In the long term, monitoring studies may indicate a need for adjustments in numbers of wild horses. Low populations already exist in the South Stillwater and Lahontan HUAs (Franklin, 1980). If downward adjustments are made in these areas, the remaining populations may not survive over the long term due to loss of traits and inbreeding (National Academy of Sciences, 1980).

Development of additional waters, both for livestock and wild horses, would allow for wild horse habitat improvement. This would benefit the wild horses, particularly in the Horse Mountain herd area where water availability is critical.

The wild horse habitat would improve as the condition and productivity of the vegetation resource improves over the long term (Vegetation Section).

During gathering operations to maintain or reduce population levels, some death or injury to horses would occur due to the behavior of wild horses. This would amount to about two percent of the horses gathered, based on prior experience.

If lands are disposed of and private landowners request removal of wild horses, this would have a direct impact on the Lahontan wild horse population as a portion of their habitat would be lost.

VISUAL RESOURCE MANAGEMENT

Most areas of "outstanding" Class A scenery are included within wilderness recommendations, and therefore would receive protection. Some deterioration of Class B scenery would inevitably occur in the long term as the area outside of the WSAs becomes developed from mining activity, range improvement, and land sales. This deterioration should be localized however and would not affect the overall status of any areas scenic classification.

Land disposal around populated areas should not have any impact on visual resources. Land disposals in open, undeveloped valleys, especially Edwards Creek Valley, could cause impairment to visual resources if the lands disposed of are converted to commercial, residential, agricultural, or industrial uses.

CULTURAL RESOURCES

The 268,874 acres recommended for wilderness protection under this alternative would preserve cultural resources found within the WSAs in their natural state.

The disposal of 116,500 acres of public land within the RMP area requires clearance for cultural resources before sale. Since cultural sites are a nonrenewable resource, any sites found within a disposal area would be lost in their natural state, even though mitigation would be developed.

RECREATION

Recreation use would increase by 7525 visitor days in the long term.

Many areas with high primitive and semi-primitive non-motorized opportunities are included in the wilderness recommendation in this alternative and would be protected in both the short and long term.

Current backcountry visitor use of the four WSAs is 2951 visitor days/year. This would increase over the long term to an estimated 8749 days/year under this alternative (Appendix H).

There would be an increase in roaded natural and semi-primitive motorized recreational opportunities as the acreage outside the WSAs becomes developed and opportunities are converted from non-motorized types to motorized. However, there would not be a corresponding increase in visitor use days, due to the relatively large supply of opportunities elsewhere. Estimated visitor use figures would increase from 2200 days/year now to 3537 days/year over the long term (Appendix H).

Establishment of bighorn sheep reintroductions in the Clan Alpine, Stillwater, and Desatoya mountain ranges would increase nature study and photo opportunities in the short term, and would support bighorn sheep hunting opportunities and use over the long term, if transplants were successful. Increases in big game numbers over the long term would increase hunter use days from 1961 days/year at present to 2351 days/year (Appendix H).

Any additional fencing for livestock management could be an inconvenience to hikers and campers in backcountry areas and could lower the quality of their wilderness experience.

LIVESTOCK GRAZING

Livestock use is projected to be 62,640 AUMs in the long term (two percent decrease).

Initially, livestock use would be authorized at the present three-year average use level of 64,239 AUMs. There would be no initial adjustment in active preference.

Due to the land disposal program, a potential loss of 114,680 acres (3222 AUMs) in 14 allotments exists within the short term. This loss could result in a reduction of livestock use to 61,017 AUMs (Appendix L). Active preference levels in the affected allotments would also be adjusted to compensate for this loss. The disposal of this public land to someone other than the affected permittee would reduce the grazing capacity of that permittee's livestock operation. The range of this loss would be from five AUMs to 1005 AUMs.

The construction of range improvements in the Dead Horse Well allotment would enable the use of 699 AUMs currently unused.

Allotment Management Plans (AMPs) that would be developed for the Category I allotments, and where needed for Category M and C allotments, would provide a means whereby more uniform patterns of utilization would occur through improved distribution of livestock. The AMPs would provide scheduled use and/or rest for specific areas within each affected allotment (Grazing Treatments, Chapter Two). Implementation of AMPs could require the permittees to move their livestock several times during the year, thereby increasing labor requirements.

The construction of range improvements would be required to implement the AMPs and would range from permittee furnished labor to BLM contracted installation. Permittees would be required to maintain structural improvements.

In the long term, adjustments in livestock use would be initiated where the range monitoring program may indicate there is a need to meet specific allotment objectives.

It is assumed that the establishment of AMPs and their associated range improvements would be completed in the short term and implementation would then continue, increasing manageability of the resource in the long term. These range improvements, consisting of allotment boundary and cross fencing, new and improved waters, and some vegetation manipulation, should result in improved livestock distribution, rest for specific grazing areas, and a subsequent measurable increase in forage production. In the long term, an increase of approximately 1388 AUMs of livestock forage should result (Vegetation Section; and Appendix L, Table 2).

Loss of livestock grazing may occur within ten allotments requiring protection of vegetation in specified riparian zones. This amounts to a minor loss of 449 AUMs and represents 0.89 percent of the RMP area (Appendix L, Table 2).

The net result of these impacts is projected to be a loss of 1634 AUMs (three percent of the three year average licensed use) in livestock use. The increased production from improved range management would not be sufficient to offset losses from land disposals in grazing allotments (Appendix L, Table 2).

Wilderness designation of 268,874 acres may result in restricting vehicle use and construction of some range improvements which would limit livestock management opportunities. Maintenance of some existing range improvements and salting presently being done with vehicles may have to be accomplished by horseback and/or on foot. This would cause additional labor and expense for the affected permittees.

GEOLOGY, ENERGY, AND MINERALS

Energy and mineral exploration and development would be precluded or constrained on 268,874 acres.

Wilderness

The impacts to the geology, energy and minerals resources resulting from wilderness designation are: 1) segregation of public lands against appropriation or disposition under the mining laws, mineral leasing laws, and other mineral disposal authorities; 2) constrained energy and minerals operations on pre-designation leases and valid mining claims; 3) constrained prospecting activities on unappropriated lands; and 4) the preclusion of energy and mineral developments on newly discovered deposits.

The following will outline the specific impacts to each WSA for the Mid-Range alternative.

Clan Alpine Mountains

One hundred fifty-eight thousand five hundred four (158,504) acres of public land would be withdrawn from mineral entry. Three thousand four hundred sixty (3,460) acres, encumbered by 173 mining claims and 100,000 acres under oil and gas lease would be affected. One hundred twenty-five thousand (125,000) acres of lands designated as having moderate favorability and 3000 acres of lands designated as having high favorability for metallic minerals would be withdrawn. These lands include the north trending belt of structurally complex Mesozoic sedimentary rocks exposed in the central region of the Clan Alpine Mountains (see Resource Protection). Approximately 158,504 acres of lands designated as having moderate favorability for geothermal resources would be withdrawn (USDI, BLM Great Basin GEM, 1983).

Stillwater Range

Twenty-nine thousand seven hundred ninety-seven (29,797) acres of public land would be withdrawn from mineral entry. Two hundred eighty (280) acres, encumbered by 14 mining claims, and 2200 acres under geothermal lease, would be affected. Approximately 29,800 acres of lands designated as having moderate favorability for the occurrence of metallic minerals and geothermal resources will be withdrawn (USDI, BLM Great Basin GEM, 1983). This alternative would constrain the exploration and proposed mining activities in the Fondaway Canyon area (Akright, 1983).

Desatoya Mountains

Forty-three thousand forty-five (43,045) acres of public land would be withdrawn from mineral entry. Twenty one hundred (2,100)acres of lands under oil and gas lease would be affected. Thirty-six hundred (3,600) acres of lands designated as having moderate favorability for metallic minerals and geothermal resources would be withdrawn, and 40 acre material site right-of-way would be affected.

Job Peak

Thirty-seven thousand four hundred seventy-seven (37,477) acres of public land would be withdrawn from mineral entry. Fourteen hundred eighty (1,480) acres, encumbered by 74 mining claims, 640 acres under geothermal lease, and 100 acres under oil and gas lease would be affected. Thirty-two thousand seven hundred (32,700) acres of lands designated as having moderate favorability for the occurrence of metallic minerals would be withdrawn, together with 36,000 acres of moderate and 1400 acres of high favorability geothermal lands (USDI, BLM Great Basin GEM, 1983).

Lands Disposal

The impacts to geology, energy and minerals associated with the land disposals is the same as the No Action alternative.

FORESTRY

Wilderness designation would result in total allowable cut decreasing from the potential of 1234 cords/year to 928 cords/year under this alternative. Potentially, therefore, in the short term 306 cords of wood are foregone each year for a cumulative total of 6120 cords in the long term. Prime woodcutting areas such as Byers Canyon, Bench Creek, upper Camp Creek and the Dens area are still excluded from cutting.

Wilderness designation would not constrain family woodcutters from full use of firewood cutting areas, and commercial firewood cutting could increase substantially under this alternative.

In the short term this increase will be underutilized due to the small demand and relatively large supply of wood in the area. As demand increases over the long term however, the amount of wood cut would more closely match that available under this alternative.

WILDERNESS

Congressional designation as wilderness of 268,874 acres in the four WSAs would protect wilderness values on this acreage in the long term. The natural character of these areas and the opportunity to experience solitude and/or primitive and unconfined recreation in a natural setting within their boundaries would be preserved. Benefits of wilderness designation would be the same as those described in the Resource Protection alternative, except that they would occur on a reduced acreage.

Wilderness values would not be protected on 163,383 acres. Impacts would be the same as those described in the No Action alternative except that they would occur on this reduced acreage.

Clan Alpine Mountains

In this alternative, a large portion (158,504 acres) of this unit is recommended suitable. This acreage includes a good diversity of landscapes and ecosystems, as well as manageable boundaries. High quality wilderness values would be protected, while major resource conflicts and areas with potential manageability problems would be deleted. Wilderness values would not be protected on 37,624 acres. This acreage is located in nine separate areas around the periphery of the unit and includes all existing geothermal leases; areas around present mining operations in Stone, Florence, Dyer, Bernice and Hoyt Canyons; lands where the existing WSA boundary is difficult or impossible to find and boundary adjustments were necessary; areas of low wilderness quality and/or potential manageability problems; and acreage impacted by woodcutting activities around Camp Creek. Wilderness values which would be lost under this alternative are minimal.

Lands to be protected by wilderness designation under this alternative are rated moderate to high with respect to their mineral and geothermal potential. Impacts to these resources would be as those described in the Resource Protection alternative.

Thirty-eight pre-FLPMA mining claims remain in the WSA and could be developed under the "manner and degree" provision of 43 CFR 3802 during the remainder of the wilderness review period, thus reducing wilderness values in areas where they are located. These claims are found primarily around existing mining operations along the periphery of the WSA, although roughly a third are situated around a small inactive operation on Mt. Grant in the center of the unit. Due to their location, the impact of developing these latter claims would directly reduce the wilderness values on about 4,500 acres, as well as diminish the integrity of the area as a whole.

Management of the area under this alternative should be relatively easy since several boundary adjustments were made for manageability reasons. The biggest problem would be encountered in locating section lines in the extreme north and south ends of the unit where these lines are not near obvious topographic features. Some ORV use could occur off of certain cherrystem roads, (notably Byers Canyon road) and on the alluvial fans remaining in the unit. Impacts could be substantial in the affected areas.

Stillwater Range

A portion of this unit (29,797 acres) is recommended suitable under this alternative. Major resource conflicts and manageability problems would be deleted from the suitability recommendations, as would areas with low wilderness values. Despite the fact that wilderness values would not be protected on 64,810 acres, sufficient acreage is included in the suitable area to preserve the wilderness values of the Stillwater Range WSA.

Both the east and west benches are excluded under this alternative because of resource conflicts, difficulties of managing them as wilderness, and their low wilderness values. Impacts could occur in the long term, primarily from additional mineral and energy exploration activities, which would degrade or eliminate the existing wilderness values. Off-road vehicle use in these areas would be difficult to control. The main values which these bench areas would add to the WSA are their size and ability to act as a "buffer zone", however, opportunities for solitude and recreation which they hold are minimal. The exclusion of these areas would not be detrimental to the wilderness values of the WSA as a whole.

South of Wood Canyon, the central portion of the unit and the lower foothills on the west side are excluded due to the presence of 52 pre-FLPMA mining claims, many of which are presently being worked. Additional activity on these claims would further impact wilderness values in these areas and manageability options would be limited. Wilderness values are moderate, and the loss of them would be of minor consequence in the unit as a whole. Essentially the same type of situation prevails in the northwest portion of the WSA where 29 pre-FLPMA claims exist, over five miles of ways (bladed at one time), and old mine workings can be found.

Two areas of private inholdings totalling 620 acres without a means of access, have had the lands around them deleted. Provision of an access route and possible development of these properties would severely degrade wilderness values in the surrounding areas.

Other than mineral potential and encumbrances, resource conflicts in the area recommended suitable are negligible, and the most significant wilderness values in the WSA would be protected from the types of impacts which have taken place throughout the rest of the unit. Management of the area as wilderness could prove to be somewhat difficult due to the proximity of conflicting resource uses and a boundary segment over eight miles in length which follows a contour line. The interior of the suitable area is a solid, cohesive unit with no cherrystem roads.

Desatoya Mountains

Under this alternative 43,045 acres would be recommended suitable. In addition, 51 acres contiguous to the east side of the unit would be added to the WSA in order to enhance manageability. Wilderness values are high throughout the study area and resource conflicts are minimal. Although 8,217 acres would not be protected under this alternative, sufficient acreage would be included in the suitable area to preserve the wilderness values of the Desatoya Mountains WSA.

In the southeast corner of the study area a boundary adjustment would be made in order to enhance manageability and provide a more readily definable boundary. This would result in a net loss of 273 acres to the size of the study area. The loss of this acreage would have a negligible impact on the wilderness values of the area.

In the northeast part of the WSA 7,944 acres would be excluded from the unit. This acreage is bounded on the west by the Cedar Creek and Topia Creek roads, the two and one-half mile way connecting them, and the one and one-quarter mile long way connecting the Topia Creek road with the boundary road leading west from Basque Summit. These roads and ways are used occasionally during hunting season, and by the grazing allotment permittee for access to range improvements. Manageability problems related to controlling use of these routes, especially the ways, could arise. The remainder of the WSA could stand as a wilderness without this acreage and would still protect wilderness values in the area as a whole. Wilderness values in the excluded acreage are good and loss of this acreage would reduce the size of the study area by over 15 percent, as well as negatively affect the configuration of the unit. Overall, recreation and solitude opportunities would also be reduced.

Management of the area under this alternative should be relatively easy since most boundaries are well defined, and those boundaries which use section lines are located near the natural topographic break between the alluvial fan on the west and the steep, mountainous part of the range to the east. Some impacts associated with ORV use can be expected on the east side of the unit, especially along the ridgeline in the north central part of the area where the Cedar Creek way will remain open.

Job Peak

This unit would be partially (37,477 acres) recommended suitable for wilderness designation. Wilderness values are good in the central mountainous portion of the unit and moderate to good around Table Mountain and in the area to the west. Habitat of the recently reintroduced Desert Bighorn sheep herd would be protected under this alternative. Other than for mineral potential and encumbrances, resource conflicts are negligible in the area recommended suitable. Wilderness values would not be protected on 52,732 acres, however, adequate acreage would be included in the suitable area to preserve the best quality wilderness values in the Job Peak WSA.

The northwest portion of the unit would be deleted in this alternative due to a number of factors including several roads, numerous range improvements, moderate mineral potential, and a large block of mining claims. Wilderness values are low, and combined with the above considerations this area would add little to a suitability recommendation.

The alluvial fan on the east side contributes little to the wilderness values of the area, except for size and potential as a "buffer zone" effect. All of the geothermal and oil and gas leases found in the unit are located there. Exclusion of this area would not be detrimental to the WSA as a whole, and its retention would present potential resource conflict and management problems.

South of Shirttail and East Lee Canyons in the central and western part of the unit, the mountainous, heavily vegetated landscape to the north gives way to sparsely vegetated rolling hills. Here the quality of wilderness values is considerably less and the landscape is common and undistinguished. Two cherrystem roads would be eliminated by deleting this acreage and no appreciable loss of wilderness values would occur.

Management of the area recommended suitable under this alternative would be relatively easy. Most of the potential manageability problems associated with energy and mineral exploration, ORV use, and maintenance of range improvements would be eliminated by deleting acreage from this alternative. Boundaries follow existing roads and easily located topographic features. Some impacts due to ORV use may occur along the western boundary, although this has not been a problem as yet.

LANDS

A total of 116,500 acres of public lands could be transferred to other ownership.

The transfer from federal ownership of the 116,500 acres of land designated as suitable for disposal would result in more efficient management of the lands resource, both by the public and the private sector. This is because those lands identified for transfer are mostly scattered tracts and checkerboard lands. Such land patterns usually have legal access problems and are more susceptible to trespass situations due to the complexity of property boundaries. Transfer would reduce these situations. These lands would provide for agricultural and community expansion.

ECONOMIC CONDITIONS

Regional income would decline by $19,000 in the long term.

Economic Structure

Cumulative economic impacts from this alternative would result in only minor changes in the area's economic structure. Input-Output analysis indicates a net decrease in regional income of $19,000 and a net decrease in employment of four jobs including the multiplier effect. These represent less than one percent of Churchill County income and employment, respectively.

Tax and Fiscal Structure

If 116,500 acres of public lands are sold under this alternative, property tax revenues could increase by the levels estimated in the Tax Revenue Impacts Table.

ESTIMATED TAX REVENUE IMPACTS

	Change In Revenues	Percent of Current Property Taxes
Churchill County	$44,000	14%
Lyon County	$64,000	11%
Nye County	$23,000	2%
Storey County	$ 200	0.1%
	$131,200	7%

Source: Appendix K

The only change in Payments in Lieu of Taxes due to the reduction in public land acreage would occur in Storey County and would amount to less than $100.

The market price of lands for private properties adjacent to the proposed disposal areas could decrease due to the substantial increase in the supply of lands through the disposal process. This could, in turn, decrease assessed values from those properties, which would partially offset the increase in revenues outlined above. However, this cannot be quantified due to lack of data.

County expenditures would increase as a result of the land disposal process because services would have to be provided to the new private lands. Provision of these services to new areas is likely to be less efficient than currently occurs because the cost of services is generally greater in outlying areas than in current communities.

Resource Industries

Livestock Ranching

In the short term, as indicated in the Livestock section, disposal of lands in grazing allotments to non-permittees would result in a decline in grazing capacity. This would be partially offset by activating use in the Dead Horse Well allotment. Linear programming (computer) analysis indicates that this would result in short term losses as indicated in the following table.

SHORT TERM ECONOMIC IMPACTS 1/
Mid-Range Alternative

	Annual Income (% Change)	Employment (% Change)
Yearlong Use Ranch	$- 2,000 (13%)	N/A
Winter Use Ranch	+ 100 (1%)	N/A
Livestock Sector 2/	-20,000 (3%)	-2 (3%)
Regional 3/	-72,000 (<1%)	-8 (<1%)

1/ Change from current levels.
2/ Percent of current income and employment from public land ranches.
3/ Includes multiplier effect.

Note: Methodology outlined in Appendix K.

In the long term as indicated in the livestock section, grazing capacity would increase on the remaining lands. The increase in income projected to occur from the additional grazing use would be partially offset by potential loss of capacity due to riparian protection and potential increased costs of operation in wilderness areas. The net effect would be an increase in annual income to the livestock sector of $10,000 and an increase of one job (two percent of current income and employment, respectively).

However, as indicated in the following table, this would not be enough to offset the potential loss of capacity from land disposals.

LONG TERM ECONOMIC IMPACTS
Mid-Range Alternative

	Annual Income (% Change)	Employment (% Change)
Yearlong Use Ranch	$- 1,600 (10%)	N/A
Winter Use Ranch	+ 300 (4%)	N/A
Livestock Sector [2/]	-14,000 (2%)	-2 (2%)
Regional [3/]	-51,000 (<1%)	-6 (<1%)

[1/] Change from current levels.
[2/] Percent of current income and employment from public land ranches.
[3/] Includes multiplier effect.

Note: Methodology outlined in Appendix K.

The capital value of the ranches would decline primarily due to land disposals, but also to a lesser extent, protection of riparian areas and wilderness designation. This would be partially offset due to increased vegetation production. The net effect would be a decline of $140,000 or five percent of current value.

Recreation

This alternative would result in a minor increase in the area's recreation related business through increases in spending by recreationists for big game hunting and backcountry recreation. The projected increase in recreation use of 7525 days (Recreation Section) would result in an increase in annual regional income of $32,000 including the multiplier effect and an increase of two jobs (Appendix K).

Mining

The opportunity for increased mineral and energy production on 268,874 acres designated for wilderness would be foregone under this alternative as outlined in the Geology, Energy and Minerals section. This cannot be quantified in terms of dollars due to lack of data. In addition, operating costs on pre-designation leases and valid mining claims could rise due to constraints imposed by wilderness designation. Although it is unlikely that all of the acreage in the areas recommended for wilderness would be leased, a potential for $600,000 in increased annual geothermal and oil and gas lease revenues would be foregone.

Forest Products

The opportunity for increased commercial cordwood harvesting on 7040 acres of woodlands would be foregone under this alternative. The annual allowable cut foregone would have a stumpage value of $1500.

SOCIAL CONDITIONS

This alternative would result in minimal overall changes in the social conditions of the RMP area.

Initially authorizing livestock use at present use levels as well as developing AMPs/grazing systems on Category I allotments and grazing systems as needed in Category M and C allotments would probably find a broad base of ranching sector support. The resource area ranching sector is anxious that the BLM use their management tools and revenue from grazing fees to develop the grazing potential of the area. This element of the Mid-Range alternative would be viewed by that sector as a positive step by the Bureau to improve that grazing potential.

However, opposition could be expected from some members of the ranching community on that element of the Mid-Range alternative that would manage wild horses at the current population of 2190 head (1982 level) and maintain that level in the short term with long term adjustments being determined by the range monitoring program. Some resource area residents have suggested that wild horse numbers be reduced to, and maintained at, 1971 numbers to prevent what they perceive to be undue destruction of public range lands.

The reintroduction of native wildlife species would probably be supported by the ranching sector as long as those reintroductions do not compete with livestock for existing forage. Since the main thrust of the reintroduction will be bighorn sheep, it would be a beneficial management action as far as establishment of that big game species is concerned. Perceptually, this would undoubtedly be strongly supported by big game hunters.

Disposal of up to 116,500 acres would be viewed positively by many area residents, because it would reduce federal land holdings in the area and provide for opportunities for those lands to pass into private ownership for what ever use those owners may desire to pursue. However, this proposal would probably be met with mixed response. Ranchers are generally supportive of the opportunity to be able to purchase public lands on which they have grazing rights. There is some apprehension, however, that outside interests with greater financial assets would be able to outbid them in a competitive public sale situation. Because of their historic and traditional use of and dependence on public lands for their livelihood in the production of food and fiber, many of these ranchers feel they should have preference rights in any sale situation that would involve the disposal of lands on which they have grazing rights.

It could be expected that there would be a political response to any attempt by the BLM to dispose of public lands on which grazing privileges are currently held without some assurance that those who hold those privileges would have preference rights in any sale situation. It could also be expected that those individuals and interest groups who are environmentally or preservation oriented may selectively oppose disposal actions on any parcel or parcels they feel has a greater value in being preserved in their natural state. They would not consider the sale of those parcels in the best interests of the general public.

Opposition to the recommendation of any of the WSAs as suitable is to be expected. This opposition will probably follow established community response patterns. It is not expected that new community coalitions would evolve as a direct result of the implementation of this alternative.

Designation of parts of all four of the WSAs as wilderness would not introduce new people into the area permanently in any great numbers nor would designation cause many residents to leave. Implementation would probably not provide much greater employment opportunities to the underemployed or unemployed, nor would it create new jobs in different wage structures or create jobs for particular employee groups in any large numbers. Although some jobs may develop in the trade and service sectors as a result of an increase in wilderness visitors or hunter days, those jobs would be in the same sector and same occupations as existing jobs in the area.

This alternative would withdraw parts of all fours WSAs from appropriation under the mining laws on the date of designation as wilderness unless otherwise provided for in the enacting legislation, as well as constrain operations on pre-designation leases and valid existing claims. This would be perceptually viewed as a major impact on the mining sector. The opportunities foregone for the individuals as well as for the community could be major. This cannot be quantified due to lack of data. Over a prolonged period of time wilderness characteristics and values may be irretrievably lost on those areas that were dropped from further wilderness consideration. This aspect would undoubtedly be viewed negatively by those who actively support the wilderness program.

Local Community

There would be minimal overall impacts on the local community. There would be no major impacts to current lifestyles, interactional patterns, leadership structure, or community viability as a direct result of implementing this alternative.

Regional and National Communities

These communities would probably view this alternative as a viable compromise.

COMMODITY PRODUCTION ALTERNATIVE

SOILS

Erosion problems would continue on five of the seven identified specific problem areas.

Under this alternative, the present average sediment yield level for the RMP area would decrease slightly from 1.1 tons/acre/year to 1.0 tons/acre/year due to improved livestock management and reductions in wild horse numbers.

Channel erosion would continue to be a problem on Middlegate and War Canyon Creeks, as would gully erosion in Cherry Valley meadows and accelerated wind erosion in the Dixie Valley Wash and lower Bench Creek areas. The areas affected by accelerated wind erosion due to lack of plant cover adjacent to watering and holding areas would increase. Mining exploration and operations in areas not recommended as suitable wilderness would result in increased surface disturbance for roads, pits, pads, etc., and in many cases these disturbed areas would offer limited opportunities for rehabilitation. Unprotected bare areas are highly susceptible to accelerated erosion, and sediment yield on these areas would increase.

WATER RESOURCES

There would be a minor improvement in water distribution. There would be an overall improvement in water quality.

Water Quantity

Proposed water facilities would improve distribution of water for livestock and wildlife in all Category I allotments and three Category M allotments. Distribution of water would still remain a problem in most M and C allotments in the southern and western portions of the RMP area. Slight improvement in the Category M anc C allotments would occur with the addition of two wells and two pipelines.

Water Quality

All water sources identified in the 1980 BLM sampling and analysis as exceeding the water quality criteria for acquatic life and wildlife propagation would be protected under this alternative and should improve. An additional 20 springs and three streams (16 miles) would be protected and should improve in water quality.

A probable decline in water quality for most unprotected water sources may occur due to increased utilization by livestock. It is expected that these sources would degrade in water quality at an increasing rate.

Wilderness designations under this alternative would provide increased protection for approximately 16 miles of perennial streams and 202 springs from impacts by excluded surface disturbing activities.

VEGETATION

In summary, 68 percent, 29 percent and three percent of the planning area would have upward, static, and downward trend, respectively. Ecological condition and forage condition would improve three percent and one-half percent, respectively. Vegetation productivity would increase five percent overall, and vegetation treatments would result in a net increase of 535 AUMs.

General

Within the Category I allotments, improvements in vegetation condition, trend, and productivity would result from improved distribution of grazing use, grazing systems, range improvements, and AMPs which provide for proper management of livestock grazing use, rest for desirable key species, and the proper level of utilization. Within the Category M and C allotments these improvements would largely be due to reduced yearlong use by wild horses and reductions in total grazing use. These actions would result in the benefits and impacts as discussed in this section of the Resource Protection alternative.

The slight deterioration in vegetation condition, trend, and productivity projected for one Category M allotment and one Category C allotment would be due to the impacts associated with short term overutilization and improper periods-of-use as described in this section of the No Action alternative.

Although some allotments (e.g., Stockton Flat or Eastgate) may be overutilized while being grazed at livestock preference levels, future adjustments in livestock and wild horse use may be made based upon the results of the monitoring program. Proper utilization levels therefore, would not be exceeded in the long term. Also, within the Eastgate allotment, the reduced horse numbers, the proposed range improvement, and the existing AMP and grazing system would mitigate the short term overutilization and allow some degree of improved vegetation condition and trend in the long term.

Although vegetation condition and trend would improve in all Category I allotments, as stated in the Mid-Range alternative, some Category I allotments would have repeated grazing use during critical growth periods where sizable wild horse populations occur. Such use would suppress vegetation recovery and reduce the beneficial effects of the proposed management actions.

Trend

In the short term, any changes in vegetation trend in the before mentioned allotments would be minimal and unmeasurable.

In the long term the Category M allotments which presently have upward trend (Bass Flat, Desert Mountain, Lahontan and Phillips Well) would maintain upward trend. The Category M allotments of Bell Flat, Eastgate, Mountain Well/La Plata, and the Category C allotment, Horse Springs, would improve from static to upward trend. The Category M allotment, Horse Mountain, and the Category C allotment, Stockton Flat, would deteriorate from static to downward trend. The Category I Dixie Valley allotment would measurably improve from downward to upward trend while the other Category I allotments would show more rapid improvement from static to upward trend. The remaining Category M and C allotments would have static trend (Appendix G, Part 1).

Approximately 68 percent of the planning area would have upward trend, 29 percent would have static trend and three percent would have downward trend (based on the acres having vegetation condition following land disposal).

Condition

This alternative proposes the disposal of 114,680 acres of public land within 14 grazing allotments, as discussed in the Mid- Range alternative.

Improved grazing management would encourage improvement in vegetation condition. Table 4-4 depicts the projected changes in vegetation condition for each allotment. Although the vegetation condition would deteriorate approximately seven percent for both the Horse Mountain and Stockton Flat allotments, the net result of this alternative over all allotments would be improved vegetation condition. In summary, the following improvement in ecological condition would occur on the public land remaining after land disposal: the excellent and good classes would increase 24,969 acres (one percent) and 31,697 acres (two percent), respectively, while the fair and poor classes would decrease 40,717 acres (two percent) and 15,949 acres (one percent), respectively.

Similar changes in forage condition would occur on the remaining public land with the following results: the excellent, good and fair classes would increase 1,939 acres, 929 acres, and 8,260 acres, respectively, while the poor class would decrease 11,128 acres. Forage condition would improve one-half percent overall (Appendix G, Part 1). Vegetation treatments would improve 978 and 2000 acres from the low fair ecological condition class to the high good and the excellent forage classes, respectively. Nine hundred eighty-two acres would be improved from fair to excellent forage condition (Appendix G, Part 3).

Vegetative Productivity

Although the vegetative productivity would decrease six percent and four percent in the Horse Mountain and Stockton Flat allotments, respectively, it would increase two to 14 percent in those allotments which would have improved vegetation condition.

Overall, increased vegetative productivity would result from the improved vegetation condition and vegetation treatments. The net effect would be a five percent increase in productivity (Appendix G, Part 2; and Appendix L, Table 3).

TABLE 4-4
PROJECTED VEGETATION CONDITION
COMMODITY PRODUCTION ALTERNATIVE

	ECOLOGICAL CONDITION				FORAGE CONDITION 1/				DISPOSED LANDS 2/			
ALLOTMENT NAME	POOR	FAIR	GOOD	EXCELLENT	POOR	FAIR	GOOD	EXCELLENT	POOR	FAIR	GOOD	EXCELLENT
Adriance Valley	2,044	29,290		1,084					278	119		
Bass Flat	5,452	20,223	15,536	2,059								
Bell Flat	2,940	59,581	24,003		1,176	62			92	1,235	216	
Boyer Ranch	13,388	44,843	21,295		12,373				4,196	2,139	1,725	
Bucky O'Neill	0	12,269	19,159									
Churchill Butte	531	6,580	2,348							67	17	
Clan Alpine	7,772	100,909	77,747	9,558	48,207	11,305	4,571	1,348	789	11,493	2,111	
Cleaver Peak	784	16,156	19,942									
Clifton Flat	518	6,845	0									
Copper Kettle	2,046	17,963	14,753	748	8,998	946	25		842	6,672	20	
Cow Canyon	38,759	37,779	4,422	158	22,849	1,202			3,038	1,060		
Deadhorse Well	1,845	39,401	29,846	210								
Desert Mtn.	212	8,970	10,000	923								
Dixie, Hare, Miss.	77,055	119,095	18,358	523	28,949	5,192	3,881	2,407	5,197	6,105	1,235	
Eastgate	16,175	143,172	96,964	11,545	2,585	13,290	3,747	184	2,648	6,293	2,057	19
Edwards Creek	1,241	23,103	14,686	4,496	10,150	3,075	134					
Fort Churchill	1,441	12,569	422									
Frenchman Flat	0	36,324	30,165									
Hole-In-the-Wall	43,074	34,819	4,343	243	1,257	66						
Horse Mtn.	4,922	29,589	23,509									
Horse Springs	1,724	7,168	826	20	327	17			2,449	2,417		
LaBeau Flat	15,427	76,278	41,741		917							
Lahontan	5,792	21,491	12,755	1,117					582	3,468	2,683	61
Mtn. Well/La Plata	9,779	62,162	52,718	3,591	1,232	3,010	155					
Phillips Well	651	14,293	23,814	2,164								
Rock Springs	545	8,692	7,871									
Salt Wells	1,216	16,232	29,978									
Stockton Flat	2,724	4,921							29	1,553		
Truckee/Virginia									1,690	18,484	486	
White Cloud	12,243	31,024	8,938		10,840	233						
TOTAL	270,300	1,041,741	606,139	38,439	149,860	38,398	12,513	3,939	21,830	61,105	10,550	80

1/ Woodlands and seedings

2/ Does not include 21,115 acres of unclassified disposal lands.

Note: No analysis for that portion of the New Pass unit of the Mt. Airy allotment (Battle Mountain District) within the Lahontan RMP area (4328 acres) has been prepared due to a lack of data. The Mt. Airy allotment is included in the Shoshone Eureka RMP - Battle Mountain District.

Source: Methodology for Predicting Shift in Condition, Carson City District, Nevada 1982 (Appendix G, Part 1).

Other range improvements (e.g.; pipelines, tanks, and fences) support grazing systems and, therefore, contribute to the improvement in vegetation condition and trend predicted. Direct impacts would be the same as those discussed in the Resource Protection alternative.

The seedings and brush control treatments proposed would be in the same areas as those identified in the Mid-Range alternative. The resources affected, the impacts and the benefits would be the same as those discussed in the Mid-Range alternative, with the exception that the approximate net increase from the treatments would be 535 AUMs within five years (Appendix G, Part 3).

Riparian and Aspen Communities

In the long term the condition of riparian and aspen communities would improve.

Under this alternative the short term overutilization of riparian and aspen communities would continue except for 188 protected acres.

In the long term with the implementation of grazing systems and protection of a portion of the currently overutilized riparian habitat (188 acres) vegetation condition would improve. Plant species diversity, cover, and production would improve resulting in increased streambank stability, sediment control, and improved habitat for all wildlife and grazing animals (Dahlem, 1979 and Duff, 1980).

Grazing animals would continue to overutilize the more palatable vegetation available in riparian areas before making any major use of the vegetation in the uplands. Thus the ecological condition of unprotected riparian habitat is not expected to improve, and impacts from grazing on unprotected riparian habitat are expected to continue in all allotments (Dahlem, 1979 and Behnke and Raleigh, 1978).

Proposed seedings and implementation of grazing systems are expected to improve ecological condition over time. Plant species composition, production, and cover would improve in all areas, thereby reducing grazing pressure on aspen reproduction resulting in increased production (Dahlem, 1979). Coles (1965) reported that sufficient forage for the number of grazing animals would prevent serious damage to aspen reproduction. Heavy use by livestock results in damage to aspen reproduction only where herbacious forage is insufficient to support the number of livestock. Thus, intensive management including adjustments in grazing intensity, grazing systems, adjustments in periods-of-use, and range improvements would result in improved aspen root sucker survival and the perpetuation of existing aspen stands (Coles, 1965). The rate of improvement in the ecological condition of aspen sites would be expected to parallel the rate of improvement in ecological condition of all other ecological sites.

WILDLIFE

Wildlife habitat condition would improve in the long term.

In the short term the impacts would be the same as those stated under the No Action and Mid-Range alternative. In the long term the reduction in wild horses and implementation of AMPs would improve wildlife species habitat.

Wilderness designation of 114,478 acres would protect wildlife habitat by preventing degradation from surface disturbing activity.

Mule Deer

As indicated in Chapter Three, most of the mule deer habitat in the RMP area consists of low quality browse - a situation which is expected to continue under this alternative.

In AMPs that include later turn-in dates in the Category I allotments there should be an improvement in the riparian and open-range areas by reducing utilization during the critical growth period of the plants.

The proposed wildlife developments under the long term would improve habitat for mule deer, with the protection of 188 acres of riparian areas from livestock and wild horse use.

Changes in periods-of-use and the proposed improvements under this alternative would result in an upward trend toward reasonable numbers.

In the long term, with the reduction in horses and improved management of livestock, an upward trend in habitat could occur.

Bighorn Sheep

Under this alternative future introductions of bighorn sheep could continue in the Stillwater, Clan Alpine, and Desatoya mountian ranges in the short and long terms. The reduction in wild horse numbers would open the Clan Alpine Range to reintroductions.

In the short and long term reasonable bighorn sheep numbers may be achieved in the Stillwater and Desatoya mountain ranges but not in the Clan Alpine Mountains.

Mountain Lion

Lion populations would increase under this alternative with the increase in mule deer populations.

Sage Grouse

The comments made for mule deer generally apply to sage grouse as well. With the implementation of improvements (Table 2-1) and grazing systems that consider forbs, populations should increase significantly as more succulent, nutritious vegetation and insects become available.

Chukar

Chukar populations would increase under this alternative with the further implementation of the Sand Springs and Desert Mountain Habitat Management Plans, which would include development of three additional guzzlers in the area. Improvement in livestock management under this alternative would have little or no effect on the chukar populations.

Nongame Birds

Since most nongame birds depend on small but key habitats such as tree clumps and areas of surface water at least part of the year, their populations would do best if many of the key habitats were fenced to maintain vegetative structural diversity. Under a worst case scenario, many of these key areas would be eliminated over the long term since no reproduction was taking place (as in aspen and cottonwood clumps). With the decline of habitat both species and numbers of nongame birds would also decline.

Fisheries

Under this alternative portions of Horse Creek and Edwards Creek can be protected and Big Den Creek can be further protected, if necessary, to maintain the existing fish populations. Portions of Cherry Creek that are potential or existing fisheries could be protected. The proposed wildlife developments under the long term would eliminate all impacts to fisheries habitat through the protection of the streams from livestock and wild horse use as discussed under the Resource Protection alternative.

WILD HORSES

Wild horse population levels would be reduced in all herd use areas. In the Lahontan, Horse Mountain, South Stillwater, North Stillwater, and Desatoya herd use areas the levels would be reduced to less than 50 head in each HUA. In these areas, the populations remaining may not survive over the long term due to the loss of traits and in-breeding (Franklin, 1980; National Academy of Sciences, 1980).

Development of additional waters, both for livestock and wild horses, will allow for wild horse habitat improvement, which will benefit the wild horses. The wild horse habitat would also improve as condition and productivity of the vegetation resource improves over the long term (see Vegetation Section).

During gathering operations to maintain or reduce population levels, some death or injury to horses would occur due to the behavior of wild horses. Based on prior experience this could amount to about two percent of the horses gathered.

If lands are disposed of and the landowners request removal of wild horses, this would have an impact to the Lahontan wild horse populations as a portion of their habitat would be lost.

VISUAL RESOURCE MANAGEMENT

Protection would be extended to 114,478 acres of land of Class A "outstanding" and Class B "above average" scenic quality ratings under wilderness recommendations in this alternative. However, several hundred thousand acres of additional

Class B land would not be afforded protection. Any development on this land would be mitigated through normal VRM procedures, however, the standards involved would be much lower.

Sales of public lands immediately adjacent to existing communities would be no problem as any development would be visually similar to adjacent developments. Disposal of land in remote areas could impair scenic quality, particularly over the long term if land is converted to commercial or industrial uses.

CULTURAL RESOURCES

Protection of cultural resource sites through limitation of vehicular access would occur on 114,478 acres of land because of wilderness designations. However, some 317,728 acres of equally roadless areas would not be protected, allowing road building activity and ORV use to take place. This would increase the likelihood of vandalism and pothunting of any sites found within those areas.

Cultural resource clearances would occur on the 116,500 acres of land proposed for disposal over the short term. Although mitigation may be developed in the short term for any sites found on land for sale, cultural resources are a non-renewable resource.

Range and riparian protection developments would also need cultural clearances. This is not expected to result in a loss of cultural resources due to mitigation measures as outline in Chapter Two.

RECREATION

Recreation use would increase by 5009 visitor days in the long term.

Primitive and semi-primitive recreational opportunities would be maintained on 114,478 acres under this alternative. Other areas with the same type of opportunities which are located outside of the WSAs may be lost. This is most apparent in the Stillwater Mountains where all acreage will be open to developmental activities. This may affect the only area classified as "primitive" under the ROS in the entire RMP area. This is the upper Hare Canyon-Mississippi Canyon area.

Total backcountry use in the RMP area in the long term should be 5995 visitor use days/year as compared to 2951 use days/year at present (Appendix H).

Prime campsites along riparian areas would be impacted by livestock use and fecal coliform bacteria counts of surface water would probably rise, making both campsites and water use less desirable in the short term. Concentration of livestock along aspen bottoms in the high country could possibly reduce the recreational potential of aspen stands over the long term.

Protection recommended for the three streams (fisheries) in this alternative would be inconvenient to most recreational users in the short term, however, the protection and improvement afforded these streams will benefit recreational users in the long term by maintaining aspen and riparian communities.

Reintroduction of bighorn sheep and Lahontan cutthroat trout will improve photography and nature study opportunities in the short term and may provide hunting and fishing opportunities over the long term, provided transplants are successful.

Increases in big game numbers over the long term would increase hunter use days from 1961 days/year at present to 2351 days/year (Appendix H).

Reduction in wild horse numbers will also reduce wild horse viewing opportunities across the RMP area.

Random ORV use in the RMP area should not be constrained by those units recommended for wilderness designation, since ORVs would be limited in those areas by the severe topography. Random ORV use should rise from 2200 days/year in the short term to 3300 days/year over the long term.

Other recreational uses and opportunities within the RMP area should not be affected by this alternative.

LIVESTOCK GRAZING

Livestock use is projected to be 77,708 AUMs in the long term, a 21 percent increase.

Initially, livestock use would be authorized at 81,840 AUMs. This level is 27 percent above the last three-year average use of 64,239 AUMs.

The BLM's land disposal program would dispose of 116,500 acres of public land. This would affect 3933 AUMs in 14 allotments within the short term (five years). As the lands are disposed of, affected allotments would have a corresponding reduction of AUMs in active grazing preference. This would reduce grazing capacity of ranches where lands are disposed of to someone other than the existing livestock permittee.

Construction of range improvements in the Dead Horse Well allotment would enable the activation of 699 AUMs currently unused.

Since the initial allotment-wide average use level is projected to exceed proper utilization on three allotments, it is expected that use on those allotments would decline by 4046 AUMs by the end of five years (Appendix L, Table 3). The net affect of these projected short term adjustments would yield a grazing use level of 74,575 AUMs, a nine percent reduction below the initial level but still over the three-year licensed use level by 16 percent (Appendix L, Table 3). Increasing the level of management through the implementation of AMPs would provide a means whereby more uniform patterns of utilization could occur. Rest would be scheduled for specific areas at various times, where required, through deferment or rotation planning within the affected allotments. Implementation of AMPs could cause the permittees to move their livestock several times during the grazing year, increasing their workload and cost of operations. The construction of range improvements would be required to implement the AMPs and would range from permittee furnished labor and materials to BLM contracted installations. These improvements would also add to the workload and operating costs of the permittees through their required maintenance.

Range improvements consisting of fencing, additional and/or improved watering facilities and sources, and vegetation manipulations such as brush control and new seedings would improve livestock distribution with a measurable increase in forage production. This amounts to 4042 AUMs (Appendix L, Table 3).

Loss of livestock grazing may occur in eight allotments due to protection of vegetation for specified riparian zones and springs. This amounts to a small loss of 190 AUMs.

The net effect of these projected long term adjustments in livestock grazing would yield a grazing use level of 77,708 AUMs (Appendix L, Table 3), an increase of five percent from the short term and 21 percent from the last three-year average licensed use.

Wilderness designation of 114,478 acres may result in restricting vehicle use and construction of some range improvements which would limit livestock management opportunities. Maintenance of some existing range improvements and salting presently being done with vehicles may have to be accomplished by long distance horseback and/or on foot, causing the permittees additional labor and expense.

GEOLOGY, ENERGY, AND MINERALS

Energy and mineral exploration and development would be precluded or constrained on 114,478 acres.

In summary, the impacts of the geology, energy, and minerals resources resulting from wilderness designation are: 1) segregation of public lands against appropriation or disposition under the mining laws, mineral leasing laws, and other mineral disposal authorities, 2) constrained energy and minerals operations on pre-designation leases and valid mining claims, 3) constrained prospecting activities on unappropriated lands, and 4) the preclusion of energy and mineral developments on newly discovered deposits.

Clan Alpine Mountains

Sixty-eight thousand four hundred fifty-eight (68,458) acres of public land would be withdrawn from mineral entry. Five hundred eighty (580) acres, encumbered by 29 mining claims, and 24,300 acres under oil and gas lease would be affected. Sixty-eight thousand five hundred (68,500) acres of lands designated as having moderate favorability for the occurrence of metallic and geothermal resources would be withdrawn.

Stillwater Range

Impacts associated with this alternative are the same as those in the No Action alternative.

Desatoya

Twenty-five thousand four hundred ninety-eight (25,498) acres of public land would be withdrawn from mineral entry. Two thousand (2,000) acres of land designated as having moderate potential for the occurrence of metallic minerals and 100 acres of lands of moderate favorability for geothermal resource will be withdrawn (USDI, BLM Great Basin GEM, 1983). A 40 acre material site right-of-way would be affected.

Job Peak

Twenty thousand five hundred twenty-two (20,522) acres of public land would be withdrawn from mineral entry. Five hundred (500) acres, encumbered by 25 mining claims, 640 acres under geothermal lease, and 100 acres under oil and gas lease would be affected.

Fourteen thousand seven hundred (14,700) acres of lands designated as having moderate favorability for the occurrence of metallic minerals would be withdrawn together with 19,100 acres of moderate and 1,400 acres of high favorability geothermal lands (USDI, BLM Great Basin GEM, 1983).

Lands Disposal

Impacts to geology, energy, and minerals from disposal of 116,500 acres of public land would be the same as those outlined in the No Action alternative.

FORESTRY

This alternative would result in reducing the potential for cordwood harvest by 113 cords.

Adoption of this alternative would allow almost full production of woodland products within the RMP area. Approximately 3400 acres of productive harvestable pinyon/juniper woodland are still under wilderness consideration. Total harvest under this alternative is 1123 cords/year, thus the difference between the production and no wilderness alternatives is only 113 cords/year. Almost all prime woodcutting areas such as Byers Canyon, Camp Creek and the Dens are available for harvest.

Preclusion of cutting on 3400 acres of harvestable woodland would have slight impacts since supply exceeds demand in the area at present. As commercial wood use develops in the long term, however, more of the excess wood crop will be able to be harvested.

WILDERNESS

Wilderness designation would protect wilderness values on 114,478 acres in three of the four wilderness study areas. The natural character of this acreage and the opportunity to experience solitude and/or primitive and unconfined recreation in a natural setting within these areas would be preserved. Benefits of wilderness designation would be the same as those described in the Resource Protection alternative except that they would occur on a greatly reduced acreage.

Wilderness values would not be protected on 317,728 acres. Impacts would be the same as those described in the No Action alternative except that they would occur on this reduced acreage.

Clan Alpine Mountains

In this alternative the acreage of the suitable portion of the Clan Alpines WSA is reduced to 68,458 acres. High quality wilderness values in the southern portion of the WSA would be protected and the great majority of resource conflicts and potential manageability problems would be eliminated.

Wilderness values would not be protected on 127,670 acres. These lands include all the acreage deleted under the Mid-Range alternative as well as additional acreage around Bench and Camp Creeks where the potential for woodland products harvest is good, lands along the alluvial fan in the southwest which have moderate geothermal potential and relatively low wilderness values, and the entire northern half of the WSA above Deep Canyon and lower Byers Canyon. The northern half of the WSA is where the majority of ongoing mining operations are located and mineral potential is rated moderate to high in this area. Under this alternative manageability problems associated with the cherrystem road in Byers Canyon, and the 60 pre-FLPMA mining claims located there, would be eliminated. Although wilderness values are high in the northern half of the unit, they are outweighed by resource conflicts in this alternative. The area protected as wilderness can still stand on its own without those lands which have been deleted.

Lands recommended suitable for wilderness designation under this alternative are rated moderate with respect to their mineral and geothermal potential although there are no geothermal leases, no pre-FLPMA mining claims, and only 29 post-FLPMA mining claims located there at the present time.

Important wilderness values around Cow and Deep Canyons, Upper Horse Creek and Mount Augusta would be protected. Management would be relatively easy along the northern and eastern sides of the area where the boundary follows roads and identifiable topographic features. The western and southern boundaries follow legal descriptions for over 20 miles, and on the west side where this boundary is close to the topographic break between the alluvial fan and the mountainous part of the unit, the boundary will be difficult to locate on the ground. Some ORV use could occur off of certain cherrystem roads, primarily those in Cow Canyon and War Canyon, though this should be controllable through a well developed wilderness management plan.

Stillwater Range

Impacts under this alternative would be the same as those described in the No Action alternative. Wilderness values would not be protected on 94,607 acres.

Desatoya Mountains

Under this alternative wilderness values on 25,498 acres would be protected through designation. High quality wilderness values on the west side of the mountain range would be protected and virtually all resource conflicts would be eliminated. Potential manageability problems could be substantial.

Wilderness values would not be protected on 25,815 acres (this includes 51 acres which would not be added to enhance manageability of the area). In addition to the acreage eliminated under the Mid-Range alternative three other portions of the unit are deleted under this alternative. In the far north end of the unit acreage was dropped due to conflict with oil and gas leasing combined with relatively low wilderness values and potential manageability problems from ORV use. In the southwest the boundary was pulled back to the 6800 foot contour line in order to delete the great majority of land in the unit suitable for the harvest of woodland products. All lands east of the main ridge line were dropped due to moderate geothermal and mineral values as well as potential manageability problems associated with the cherrystem roads and ways found there.

Wilderness values in the latter two portions of the unit are high. While the area recommended suitable would protect the most important wilderness values of the WSA, the deletion of these two areas would negatively impact the integrity of the unit by eliminating wilderness protection for all lands east of the main ridgeline, allowing resource uses incompatible with wilderness preservation goals to take place right up to the mouths of the most scenic canyons on the west side of the area, and creating a unit with a long narrow configuration, especially in the southern half where the area is no more than one and one quarter miles wide in places.

Manageability under this alternative would be difficult. Boundaries in the north and southwest would be hard to locate on the ground and difficult to administer. Although the prospect is low at the present time, resource uses could take place on the east side of the area which would impair solitude opportunities within the wilderness area and whose sights and sounds would have a negative impact upon the wilderness experience of a visitor either reaching the ridgetops from the west or traveling along the ridgeline. There would be the added complication of attempting to manage half of a mountain in one manner and the other half in another. The topography of the suitable area is such that it would generally protect against the occurrence of impairing activities inside the unit, however the problems identified above would greatly complicate management of the area as wilderness and could create negative impacts on the wilderness values of the area recommended suitable.

Job Peak

Wilderness designation would protect wilderness values on 20,522 acres under this alternative. Good quality wilderness values in the central mountainous portion of the WSA would be protected. The great majority of resource conflicts would be eliminated as would most potential manageability problems.

Wilderness values would not be protected on 69,687 acres. This includes all of the acreage deleted in the Mid-Range alternative as well as nearly 17,000 acres along the western alluvial fan, around Table Mountain and south of West Lee and Government Trail canyons. Energy and mineral potential is moderate in the additional area deleted under this alternative and wilderness values are low to moderate. Forty-nine post-FLPMA mining claims are located there.

The best quality wilderness values in the Job Peak WSA would be protected in this alternative and the area can still stand as a viable wilderness without this acreage. Other than for mineral potential and 25 post-FLPMA mining claims, resource conflicts are negligible in the area recommended suitable.

Management of the area recommended suitable would be relatively easy. Boundaries follow well defined roads and topographic features. Natural barriers should prevent unauthorized ORV use and most other activities which might impair wilderness values.

LANDS

Impacts to the lands resource would be the same as those outlined in the Mid-Range alternative.

ECONOMIC CONDITIONS

Regional income would increase by $444,000 in the long term.

Economic Structure

Cumulative economic impacts from this alternative would result in minor changes in the area's economic structure. Input-Output analysis indicates a net increase in income of $444,000 and a net increase of 67 jobs. This represents less than one percent of Churchill County income and one percent of Churchill County employment, respectively. Increases would occur primarily in the livestock, trade, and services sectors as outlined in the resource industries section.

Tax and Fiscal Structure

Impacts to the area's tax and fiscal structure from land disposals would be identical to those outlined in the Mid-Range Alternative.

Resource Industries

Livestock Ranching

If ranchers activate full active preference there would be an initial major increase to the ranching industry as outlined in the following table.

INITIAL LIVESTOCK RELATED ECONOMIC IMPACTS[1]
Production Alternative

	Annual Income (% Change)	Employment (% Change)
Yearlong Use Ranch	$+ 7,000 (44%)	N/A
Winter Use Ranch	+ 3,000 (38%)	N/A
Livestock Sector[2]	+159,000 (27%)	+18 (27%)
Regional[3]	+572,000 (<1%)	+63 (1%)

1/ Change from existing levels.
2/ Percent change from existing income and employment on public lands ranches
3/ Includes multiplier effect.

Note: See Appendix K for methodology.

In the short term (five years), as indicated in the Livestock section, disposal of lands and limitations due to proper utilization levels would result in a decline in livestock use from the initial level. This would result in a reduction from the initial income level under this alternative of $61,000 in livestock sector income.

However as the following table indicates, income would still be well above current levels.

SHORT TERM IMPACTS[1]
Production Alternative

	Annual Income (% Change)	Employment (% Change)
Yearlong Use Ranch	$+ 2,000 (13%)	N/A
Winter Use Ranch	+ 3,000 (38%)	N/A
Livestock Sector[2]	+98,000 (16%)	+ 11 (16%)
Regional[3]	+355,000 (<1%)	+39 (<1%)

1/ Change from existing levels.
2/ Percent change from existing income and employment on public lands ranches.
3/ Includes multiplier effect.

Note: See Appendix K for methodology.

In the long term, as indicated in the livestock section, grazing capacity would increase due to improved management. The increase in income projected to occur from the additional grazing use would be partially offset by a potential loss of capacity due to riparian protection and potential increased cost of operation due to wilderness designation (seven cents/AUM) (Appendix K). While the net change would remain below the initial livestock use level under this alternative it would still be well above current levels as indicated in the following table.

LONG TERM LIVESTOCK RELATED ECONOMIC IMPACTS[1]
Production Alternative

	Annual Income (% Change)	Employment (% Change)
Yearlong Use Ranch	$+ 4,000 (25%)	N/A
Winter Use Ranch	+ 3,000 (38%)	N/A
Livestock Sector[2]	+117,000 (20%)	+13 (20%)
Regional[3]	+219,000 (>1%)	+46 (19%)

1/ Change from existing levels.
2/ Percent change from existing income and employment on public lands ranches.
3/ Includes multiplier effect.

Note: See Appendix K for methodology.

The capital value of the ranches would decline primarily due to land disposals within grazing allotments, and to a lesser extent, from protection of riparian areas and wilderness designation. This would be partially offset due to increased vegetation production. The net effect would be a decline of $25,000 or less than one percent of current value.

Recreation

This alternative would result in a minor increase in the areas recreation related businesses (primarily the trade and service sectors) through increases in spending by backcountry recreationists. The projected increase in recreation use of 5009 days (Recreation Section) would result in an increase in annual regional income of $22,000 including the multiplier effect and an increase of one job (Appendix K).

Mining

The opportunity for increased mineral and energy production on 114,478 acres designated for wilderness would be foregone under this alternative as outlined in the Geology, Energy and Minerals section. This cannot be quantified in terms of dollars due to lack of data. In addition, the cost of operations on pre-designation leases and valid existing claims could increase due to wilderness constraints.

Although it is unlikely that all of the acreage recommended for wilderness would be leased, the potential for $200,000 in increased annual geothermal and oil and gas leases would be precluded.

Forest Products

The opportunity for increased commercial cordwood harvesting on 3400 acres of woodlands would be foregone under this alternative. The annual allowable cut foregone would have a stumpage value of $565.

SOCIAL CONDITIONS

This alternative would improve social conditions in terms of economic viability in the RMP area.

If the assumption is made that the ranchers in the RMP area would increase their scale of operation to take advantage of the opportunity to graze at the level proposed for this alternative (81,840 AUMs, a 27 percent increase over current licensed use) the potential would exist for a major increase in their wealth for a short period of time. However, due to the projected utilization restrictions and sale of lands within grazing allotments, this would be scaled back to a 16 percent increase (74,560 AUMs) in five years. The operators most likely to be affected are those with allotments in checkerboard lands near Silver Springs. Should public land in this area be sold to non-permittees some of the permittees may have to reduce the scope of their operation. Since the initial grazing use level is projected to exceed proper use levels on three allotments, these operators may opt to remain at current use levels rather than go to the expense of expanding their operation only to face the possibility of reductions in five years. The potential to increase the scope of their operations and the proposed reductions in wild horse populations under this alternative would be perceptually viewed as a positive impact by area ranchers. This would be tempered by potential reductions due to land sales and utilization restrictions.

Support from wildlife groups on the implementation of this alternative would probably be mixed. Big game hunters, particularly those who are trophy oriented, would support the reintroduction of bighorn sheep into historic habitat areas in the Stillwater, Clan Alpine, and Desatoya mountains by the Nevada Department of Wildlife. Other wildlife group members, however, could be expected to oppose the implementation of this alternative since big game habitat would be managed to maintain existing numbers of mule deer and bighorn sheep in each big game use area except where reintroductions of bighorn sheep occur.

Wild horse interests could be expected to oppose the implementation of this alternative for the same reasons that wildlife interests could be expected to oppose it. In addition, reducing wild horses to 666 head may be unacceptable to one or more of the wild horse interest groups. The implementation of this alternative would probably be viewed as having major negative impacts on wild horse populations by one or more of those groups. This would further strain relationships between those groups and the BLM.

Impacts as a result of disposing of up to 116,500 acres of isolated tracts of checkerboard lands located near Fallon, Fernley, Silver Springs, and Gabbs or lands with agricultural potential in Dixie and Edwards Creek Valleys would be the same as the impacts on land disposal in the Mid-Range Alternative.

Over a prolonged period of time, wilderness characteristics and values may be irretrievably lost on the 317,728 acres dropped from further wilderness consideration if this alternative were implemented. Other impacts under this wilderness alternative are similar to those in the Mid-Range alternative.

Local Community

Implementation of this alternative would enhance the viability of the area's ranching sector, with effects on the local community including some increases in economic viability.

The implementation of this alternative would probably find a broader base of local support than would the Resource Protection or Mid-Range alternatives. A number of individuals who previously withheld support for the Wilderness Study Program because of their concern about potential mineral deposits within the study areas could be expected to support this alternative.

Disposal of up to 116,500 acres would reduce federal land holdings in the area and would be viewed as a beneficial impact by many resource area residents, particularly if ownership were passed to local residents.

Regional and National Communities

Implementation of this alternative may be perceived by regional and national interest groups as having negative impacts in both the short and long term. These interest groups would include those with a wildlife, wild horse, wilderness, or environmental protection orientation. Those groups could be expected to reject the concept of increased emphasis of livestock grazing in the area. Implementing this alternative would increase conflicts and tensions between BLM and those interest groups and would increase the probability of legal confrontations.

Disposal of up to 116,500 acres of federal lands could be expected to be viewed with some suspicion and distrust by those environmental protection groups who adamantly oppose the sale of what they perceive to be the dwindling supply of public lands.

PREFERRED ALTERNATIVE

SOILS

Impacts under this alternative other than wilderness designation would be the same as those outlined in the Mid-Range alternative.

Designation of 111,554 acres as wilderness under this alternative would result in less surface disturbance and sediment yield in those areas designated.

WATER RESOURCES

Water Quantity

Water facilities proposed in the short term will slightly improve distribution in the Category I allotments, but water occurrence will remain a problem in most of the Category M and C allotments (see Mid-Range).

Water Quality

Impacts to water quality within the Lahontan RMP area under this alternative will be the same as those described under the Mid-Range alternative.

Wilderness designations under this alternative would provide increased protection for about 18 miles of perennial streams and 161 springs from impacts by excluded surface disturbing activities (does not include areas in Lander County).

VEGETATION

Impacts to vegetation would be the same as those outlined for the Mid-Range alternative.

WILDLIFE

Impacts under this alternative would be the same as those outlined in the Mid-Range alternative except for wilderness designations.

Wilderness designation would protect 111,554 acres of wildlife habitat in the long term by preventing degradation from surface activity.

WILD HORSES

Impacts would be the same as those outlined in the Mid-Range alternative.

VISUAL RESOURCE MANAGEMENT

Impacts to scenic resources from range improvement and resource protection developments as well as land sales will be the same as those discussed in the Mid-Range alternative.

Under this alternative 111,554 acres of Class A and B scenery would have stringent visual resource protection that wilderness designation provides. Development on all other Class A and B land in the RMP area would receive normal VRM mitigation, however, standards for mitigation would not be as stringent as those in wilderness areas, thus resulting in an overall minor reduction in visual resource quality in the long term. Short term impacts would probably be minor and confined to small sites.

CULTURAL RESOURCES

Cultural resource sites would be protected on 111,554 acres in the Clan Alpine and Desatoya Ranges, due to wilderness designation. Any sites found in the Job Peak and Stillwater Mountains area will not be preserved via wilderness designation and these sites may suffer from pothunting and vandalism over the long term due to improved vehicular access to the areas. Negligible impacts will occur in the short term due to the remoteness and extreme topographic relief of these sites.

Other impacts to cultural resources will be the same as the Mid-Range alternative discussed previously.

RECREATION

Recreation use would increase by 6008 visitor days in the long term.

Semi-primitive recreational opportunities are protected on 111,554 acres of land recommended for wilderness designation. Primitive and semi-primitive opportunities on an additional 320,703 acres of land with wilderness potential may be lost in the long term as these lands are developed.

Total backcountry visitor use of the Desatoya WSA should equal 2879 days/year in the long term, up from 855 days/year at present.

Total backcountry visitor use days for the Clan Alpine WSA in the long term is projected to be 3741 days/year, compared to 1460 days/year at present.

Total visitor use days in both WSAs for backcountry recreational uses is 2315 days/year at present. Total backcountry use for the RMP area as a whole should be 7857 days/year in the long term compared to 2951 days/year at present.

All other impacts to recreation from this alternative would be the same as the Mid-Range alternative.

LIVESTOCK GRAZING

Projected livestock use would be the same as for the Mid-Range alternative.

Wilderness designation of 111,554 acres may result in restricting vehicle use and some range improvements which would limit livestock management opportunities. Maintenance of some range improvements and salting presently being done with vehicles may have to be accomplished by horseback and/or on foot causing additional labor and expense for the permittee.

Other impacts would be the same as the Mid-Range alternative.

GEOLOGY, ENERGY, AND MINERALS

Energy and mineral exploration and production would be precluded or constrained on 11,554 acres.

The cumulative impacts associated with this alternative would include the withdrawal of 111,554 acres of public land from mineral entry; constrained activities on 91 mining claims, 24,400 acres under oil and gas lease, and 640 acres under geothermal lease; and the withdrawal of 72,100 acres of lands designated as having moderate favorability for the occurrence of metallic minerals and geothermal resources.

Clan Alpine Mountains

The impacts associated with this alternative are the same as the Production alternative.

Stillwater Range

The impacts associated with this alternative are the same as the No Action alternative.

Desatoya Mountains

The impacts associated with this alternative are the same as the Mid-Range alternative.

Job Peak

The impacts associated with this alternative are the same as the No Action alternative.

Lands Disposal

The impacts associated with this alternative would be the same as under the No Action alternative.

FORESTRY

The potential for harvest of 148 cords annually would be foregone.

Adoption of this alternative will allow almost full use of woodland products due to the limited number of areas recommended as wilderness. However, inclusion of some potential cutting areas in the Clan Alpine WSA and the Dens-Willow Creek area in the Desatoya WSA will affect total harvest levels to some degree. Most of the prime woodcutting areas such as Camp Creek, Byers Canyon, and Bench Creek have been excluded in this alternative.

Total harvest levels would equal 1086 cords/year in the RMP area under this alternative compared to a maximum of 1234 cords/year with no constraints.

These harvest levels will not affect woodcutting levels in the short term due to relatively low demand and large supply. In the long term however, as demand for woodland products increases, the harvest level of 1086 cords/year will be met.

WILDERNESS

Under this alternative, wilderness designation would protect wilderness values on 111,554 acres in two of the four wilderness study areas. This represents 25.8% of the WSA acreage. The natural character of these lands and the opportunity to experience solitude and/or primitive and unconfined recreation in a natural setting within these areas would be preserved. Benefits of wilderness designation would be the same as those described in the Resource Protection alternative except that they would occur on a reduced acreage. A description of the wilderness values within these areas is contained in Chapter Three.

Wilderness values would not be protected on 320,703 acres. Impacts would be the same as those described in the No Action alternative except that they would occur on this reduced acreage.

Clan Alpine Mountains

Wilderness values would be protected on 68,458 acres. Impacts would be the same as those described in the Commodity Production alternative. Wilderness values would not be protected on 127,670 acres.

Stillwater Range

Under this alternative none of the 94,607 acres in this WSA are recommended suitable for designation as wilderness. Impacts upon wilderness values are the same as those described in the No Action alternative.

Desatoya Mountains

Wilderness values would be protected on 43,096 acres recommended suitable for wilderness designation. This acreage includes 51 acres added to the area to enhance manageability. Wilderness values would not be protected on 8,217 acres. A description of impacts to the wilderness resource may be found under the Mid-Range alternative.

Job Peak

None of the 90,207 acres in this WSA are recommended suitable for designation. Wilderness values would be impacted to the same extent as described in the No Action alternative.

LANDS

Impacts to the lands resource would be the same as those outlined under the Mid-Range alternative.

ECONOMIC CONDITIONS

Regional income would decline by $25,000 in the long term.

Economic Structure

Cumulative economic impacts from this alternative would result in minor changes in the area's economic structure. Input-Output analysis indicates a net decrease in income of $25,000 and a loss of five jobs. This represents less than one percent of Churchill County income and employment, respectively (Appendix K). A decrease in the livestock industry would be partially offset by increases in the trade and services sectors as outlined in the Resource Industries section.

Tax and Fiscal Structure

Impacts to the area's tax and fiscal structure from land disposals would be identical to those outlined in the Mid-Range alternative.

Resource Industries

Livestock Ranching

Impacts from this alternative would be identical to those outlined in the Mid-Range alternative except that there would be a smaller decrease in livestock sector income amounting to $300 and a smaller decrease in the capital value of grazing allotments amounting to $2000 due to a smaller area recommended for wilderness designation.

Recreation

This alternative would result in a minor increase in the area's recreation related businesses (primarily the trade and services sectors) through increases in spending by recreationists for big game hunting and backcountry recreation. The projected increase in recreation use of 6008 days (Recreation Section) would result in an increase in annual regional income of $26,000 including the multiplier effect and an increase of two jobs. This would amount to less than one percent of Churchill County income and employment, respectively (Appendix K).

Energy and Minerals

The opportunity for increased mineral and energy production on 111,554 acres recommended for wilderness designation could be foregone under this alternative as outlined in the Geology, Energy and Minerals section. This cannot be quantified in terms of dollars due to lack of data. Other impacts would be the same as those outlined in the Commodity Production alternative.

Forest Products

The opportunity for increased commercial cordwood harvesting on 4920 acres of woodlands would be foregone under this alternative. The annual allowable cut foregone would have a stumpage value of $740.

SOCIAL CONDITIONS

Except for wilderness, impacts under this alternative would be similar to those under the Mid-Range alternative.

The wilderness impacts would be similar to those of the Commodity Production alternative.

UNAVOIDABLE ADVERSE IMPACTS

The following is a summary of the major unavoidable adverse impacts of the alternatives that would remain after mitigating measures, which have been incorporated into the Implementation section of Chapter Two.

Channel and wind erosion of soils would continue under all alternatives ranging from a low under the Resource Protection alternative to a high for the No Action alternative.

Water quality would be reduced on unprotected sources, ranging from a lower reduction for the Resource Protection alternative to a greater reduction for the No Action alternative.

The ecological condition of vegetation would decline by one percent under the No Action alternative.

Unprotected riparian areas would continue to be overutilized under all alternatives, ranging from less areas under the Resource Protection alternative to more areas under the No Action alternative.

The quality of wildlife habitat would decline under the No Action alternative.

Wild horse numbers would be reduced by 70 percent under the Commodity Production alternative. Habitat quality would decline under the No Action alternative.

The quality of visual resources could decline in the undesignated Wilderness Study Areas under all alternatives except Resource Protection, ranging from a greater decline under the No Action to less decline under the Mid-Range alternative.

Projected livestock grazing use would decline under all alternatives except Commodity Production, ranging from a one percent decline under the No Action alternative to a 26 percent decline under the Resource Protection alternative.

Acreage with moderate to high favorability for the occurrence of energy or metallic mineral resources would be withdrawn under all alternatives except No Action, ranging from 72,100 acres for the Preferred alternative to 393,900 acres for the Resource Protection alternative.

Wilderness values could be lost under all alternatives except Resource Protection, ranging from 163,383 acres for the Mid-Range alternative to 432,257 acres for the No Action alternative. Livestock sector income would decline under all alternatives except Commodity Production, ranging from $11,500 for the No Action alternative to $165,000 for the Resource Protection alternative.

SHORT TERM USE OF THE ENVIRONMENT IN RELATION TO LONG TERM PRODUCTIVITY

The implementation of range improvements and management systems in the short term would enhance the long term productivity of the basic rangeland resources for all alternatives except No Action. The ecological condition of vegetation in the RMP area is projected to improve by two to three percent for the other alternatives.

The designation of wilderness areas in the short term would ensure the maintenance of wilderness values in the long term but would preclude the exploitation of energy and mineral resources, except on existing leases and claims. This would range from zero acres for the No Action alternative to 432,257 acres for the Resource Protection alternative.

The short term disposal of lands from federal ownership would preclude long term public use of those lands sold to private parties. On the other hand, it would provide for long term community expansion and agricultural development. This would range from zero acres for the No Action alternative to 116,500 for the Mid-Range, Commodity Production, and Preferred alternatives.

IRREVERSIBLE OR IRRETRIEVABLE COMMITMENT OF RESOURCES

Expenditures for range improvements are considered an irretrievable commitment of funds. This would range from $439,000 for the Resource Protection alternative to $518,000 for the Commodity Production alternative.

Development of areas within WSAs not designated as Wilderness Areas would be an irreversible loss of wilderness values. This could range from zero acres under the Resource Protection alternative to 432,257 acres under the No Action Alternative.

Disposal of lands from federal ownership would be an irreversible and irretrievable commitment of public lands to nonpublic uses. This could range from zero acres under the No Action alternative to 116,500 acres under the Mid-Range, Commodity Production, and Preferred alternatives.

CHAPTER 5

LIST OF PREPARERS

Pardee Bardwell - Wildlife Biologist
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B.S. Wildlife/Range Management
Minor: Biology
Experience: Range Technician (1 yr.), Range Conservationist (1 yr.), Natural Resource Specialist (1 yr.), Wildlife Biologist (8 yrs.) - Bureau of Land Management

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Terry Knight - Wilderness Specialist/Outdoor Recreation Planner
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B.S.F.S. International Affairs
3 yrs. Graduate Work: Outdoor Recreation and Land Use Planning
Experience: Program Analyst (3 yrs.), Outdoor Recreation Planner/Wilderness (4 1/2 yrs.) - Bureau of Land Management

David Loomis - Regional Economist
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Experience: Economic Analysis (6 yrs.) - Bureau of Land Management

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B.S. Forestry/Range Management
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Chuck Otto - Outdoor Recreation Planner
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Experience: Wild Horse Wrangler (1 yr.), Forester (3 yrs.), and Outdoor Recreation Planner (3 yrs.) - Bureau of Land Management

John J. Pinzl - Realty Specialist
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B.S. Forestry
Experience: BLM Beginning Lands & Realty School (1 yr.), Realty Specialist (13 yrs.) - Bureau of Land Management

Tim Reuwsaat -Wild Horse and Burro Specialist
(Wild Horses Section)
B.S. Range and Forestry
Experience: Area Range Conservationist (1 yr.), District Range Conservationist (2 yrs.), District Wild Horse and Burro Specialist (3 yrs.) - Bureau of Land Management

Dave Schafersman - Hydrologist
(Water Resources Section)
B.S. - Renewable Natural Resources
Experience: Hydrologist (4 yrs.) - Bureau of Land Management

Rick Schuler - Range Conservationist
(Vegetation Section)
B.S. Range Management
Experience: SCS Soil Technician (6 mo.), USFS Range Technician (1 yr.), Range Conservationist (7 yrs.) - Bureau of Land Management

CONSULTATION AND COORDINATION

Public Involvement

A Notice of Intent to commence land use planning for the Lahontan Resource Area was published in the Federal Register in July, 1981. Three public workshops for identification of issues were held. Two in Carson City on July 27 and one in Fallon on July 28, 1981. News releases were issued to all local newspapers, and an open invitation letter was sent out to the public to attend the public meetings.

Briefings on the planning process and issue identification were given to the District Advisory Council and the Grazing Advisory Board for the Carson City District.

Bureau personnel met with the various county commissions throughout the year to inform them about the planning process, and to identify concerns of the counties regarding resource uses in their areas.

A letter explaining the results of issue identification efforts and draft planning criteria was sent to individuals and organizations in December, 1981.

Scoping

Again, in May, 1983, the Carson City District went to the public for comment on proposed alternatives for the Lahontan RMP. On May 10, 1983, a news release was circulated through the local newspapers opening a 30 day comment period on alternatives. A letter was sent to every person or organization on the mailing list, which included a summary of the alternatives which had been developed. The comment period ended on June 10, 1983.

The comments received concerning the preferred resource management plan and the alternatives will be addressed in the final resource management plan.

Availability of the Draft

The Draft Lahontan Resource Management Plan or a summary will be sent to all agencies, organizations, companies, and persons who have indicated an interest.

Comments have been requested from numerous agencies, organizations, and individuals, including the following:

CONGRESSIONAL

Senator Chic Hecht
Senator Paul Laxalt
Congressman Harry Reid
Congresswoman Barbara Vucanovich

FEDERAL

- Advisory Council on Historic Preservation
- Department of Agriculture
  - Forest Service
  - Soil Conservation Service
  - Stabilization and Conservation Service
- Department of Defense
  - Department of the Navy
- Department of Energy
- Department of the Interior
  - Bureau of Indian Affairs
  - Bureau of Mines
  - Bureau of Reclamation
  - Fish and Wildlife Service
  - Geological Survey
  - National Park Service
- Department of Transportation
- Environmental Protection Agency

STATE

Office of the Governor, Nevada
Nevada State Clearinghouse
Legislative Counsel Bureau

INDIAN

Fallon Paiute-Shoshone Business Council
International Council of Nevada
Walker River Paiute Tribal Council
Yerington Paiute Tribe

LOCAL

Churchill County Commissioners
Lyon County Commissioners
Mineral County Commissioners
Nye County Planner
Storey County Commissioners

UNIVERSITY OF NEVADA

Max C. Fleischmann College of Agriculture
  Cooperative Extension Service
Division of Agricultural and Resource Economics
Division of Animal Science
Division of Renewable Natural Resources
Desert Research Institute, Las Vegas and Reno
Mackay School of Mines
Nevada Bureau of Mines and Geology

NEVADA STATE LEGISLATORS

Senator Lawrence Jacobsen
Assemblyman Joseph Dini
Assemblyman Virgil Getto

OTHERS

American Horse Protection Association, Inc.
Audubon Society, Lahontan Chapter
Grazing Permittees within the Lahontan Resource Area
International Society for the Protection of Mustangs and Burros
Mining Interests
National Council of Public Land Users, Colorado
National Public Lands Task Force
National Wildlife Federation
Natural Resources Defense Council
Nevada Cattlemen's Association
Nevada Outdoor Recreation Association
Nevada Wildlife Federation
Nevada Woolgrowers Association
Northern Nevada Native Plant Society
Pacific Legal Foundation
Private citizens who have participated in the planning process
Private citizens who have requested a copy of the plan
Public Lands Council
Sierra Club
Sierra Pacific Power Company
Society for Range Management
Wilderness Society
Wild Horse Organized Assistance
Wildlife Management Institute
Wildlife Society, Nevada Chapter

Copies of the plan are available at the following Bureau of Land Management District and State Offices.

BUREAU OF LAND MANAGEMENT OFFICES

Office of Public Affairs
Bureau of Land Management
18th and C Streets
Washington, D.C. 20240

Nevada State Office
300 Booth Street
P.O. Box 12000
Reno, Nevada 89520

Battle Mountain District Office
North 2nd and Scott Street
P.O. Box 194
Battle Mountain, Nevada 89820

Carson City District Office
1050 E. William Street, Ste. 335
Carson City, Nevada 89701

Elko District Office
2002 Idaho Street
Elko, Nevada 89801

Ely District Office
Star Route 5, Box 1
Ely, Nevada 89301

Las Vegas District Office
4765 West Vegas Drive
Las Vegas, Nevada 89102

Winnemucca District Office
705 East 4th Street
Winnemucca, Nevada 89445

PUBLIC LIBRARIES

Churchill County Public Library
553 South Main Street
Fallon, Nevada 89406

Carson City Library
900 N. Roop St.
Carson City, Nevada 89701

Lyon County Library
Yerington, Nevada

Mineral County Library
1st and D Streets
Hawthorne, Nevada 89415

Nevada State Library
Library Building
Carson City, Nevada 89710

Nye County Library
Tonopah, Nevada 89049

University of Nevada, Las Vegas
James R. Dickinson Library
4505 Maryland Parkway
Las Vegas, Nevada 89154

University of Nevada, Reno
Getchall Library
Reno, Nevada 89507

Washoe County Library
1301 South Center Street
Reno, Nevada 89505

HEARINGS

The dates and times for public hearings will be announced in advance through the news media and in the *Federal Register*.

APPENDIX A

THE BLM WILDERNESS REVIEW PROCESS

The BLM wilderness review consists of three phases: (1) inventory, (2) study, and (3) reporting.

Inventory

The four wilderness study areas addressed in this study were identified using the wilderness inventory procedures described in the BLM Wilderness Inventory Handbook of September 27, 1978. The results of the intensive wilderness inventory were announced on November 15, 1980. Copies of the booklet Wilderness Study Area Decisions: Nevada BLM Intensive Wilderness Inventory are available at all BLM offices in Nevada.

In order to qualify for wilderness study area status, an area was required to contain the following wilderness characteristics described in the Wilderness Act of 1964: (1) have at least 5,000 acres or more of contiguous public land or be of a size to make practical its preservation and use in an unimpaired condition; (2) generally appear to have been affected primarily by the forces of nature, with the imprint of man's work substantially unnoticeable; and (3) have outstanding opportunities for solitude or a primitive and unconfined type of recreation. In addition, areas qualifying for wilderness study area status may contain supplemental values which include ecological, geological, or other features of scientific, educational, scenic, or historic value. The BLM wilderness inventory determined that four wilderness study areas within the Lahontan Resource Area contain these minimum wilderness characteristics.

Study

The primary goal of the BLM wilderness study process is to recommend for wilderness designation those areas where wilderness is determined to be the most appropriate use of the land and its resources.

It is the policy of BLM that each wilderness study area be studied through the BLM planning system to analyze all values, resources, and land uses. The findings of the study, including public participation, determine whether an area will be recommended as preliminarily suitable or nonsuitable for designation as wilderness. In practice, determining an area's "suitability or nonsuitability...for preservation as wilderness", in the words of the Federal Land Policy and Management Act, means determining whether the area is more suitable for wilderness designation or more suitable for other uses.

Reporting

The reporting phase consists of actually forwarding or reporting suitable and nonsuitable recommendations through the Secretary of the Interior and the President, to Congress. Mineral surveys required by the Wilderness Act of 1964, environmental statements, and other data will be submitted with the recommendations.

LAHONTAN RMP AREA SELECTIVE MANAGEMENT CRITERIA

The following criteria were used for grouping allotments into three management categories (M, I, and C) in the Lahontan RMP area. Criteria by allotment are displayed on Table 1 of this Appendix.

Criteria for Category M (Maintenance Allotments):

1. Present range condition is satisfactory and/or improving. Apparent trend is static or upward.
2. Present management is satisfactory.
3. Allotment is producing at or near its potential for vegetative production.
4. There are no, or very limited, land use conflicts.
5. Range improvements may have already been completed or are unnecessary.
6. Positive economic return on public investments could be realized in certain circumstances.

Criteria for Category I (Improvement Allotments):

1. Present range or ecological condition is not satisfactory.
2. Present grazing management practices are inadequate to meet resource objectives.
3. Allotment has the potential for improved vegetative productivity.
4. Resource or land use conflicts are significant, particularly relating to wild horses, riparian areas, and specific areas of overuse.
5. There is potential for positive economic return on public investments.
6. The allotments contain a majority of public lands where intensive management is feasible and can be cost effective.

Criteria for Category C (Custodial Allotments):

1. Present range condition has stabilized or is not a major factor. Apparent trend is static.
2. Vegetative production of the allotment is low and/or potential for improved productivity is limited.
3. Resource conflicts are limited or cannot be controlled due to land use ownership pattern.
4. Public lands may be widely scattered or their total acreage so small as to make intensive management or improvements economically unsound.
5. There is no present likelihood of positive economic return on public investment.
6. Additional expenditures for range improvements are not likely with current management.

APPENDIX B
TABLE 1

CRITERIA BY ALLOTMENT

ALLOTMENT	CRITERIA 1/									CATEGORY		
	A	B	C	D	E	F	G	H	I	M	I	C
Adriance Valley		X			X							X
Bass Flat			X	X				X		X		
Bell Flat					X			X		X		
Boyer Ranch			X		X			X		X		
Bucky O'Neill			X		X					X		
Churchill Butte			X		X					X		
Clan Alpine		X			X		X	X			X	
Cleaver Peak					X					X		
Clifton Flat					X					X		
Copper Kettle		X			X		X				X	
Cow Canyon	X	X	X		X		X	X			X	
Dead Horse Well					X							X
Desert Mountain			X	X						X		
Dixie Valley	X	X				X	X	X			X	
Eastgate (AMP)			X		X			X		X		
Edwards Creek		X			X		X	X			X	
Fort Churchill					X					X		
Frenchman Flat			X		X			X		X		
Hole-in-the-Wall		X	X		X		X				X	
Horse Mountain			X		X		X	X		X		
Horse Springs					X				X			X
LaBeau Flat					X		X			X		
Lahontan			X	X						X		
Mtn. Well/La Plata			X		X					X		
Phillips Well				X						X		
Rock Springs					X					X		
Salt Wells					X					X		
Stockton Flat					X				X			X
Truckee/Virginia					X				X			X
White Cloud					X					X		

A. Range condition is not satisfactory.
B. Management is not satisfactory.
C. Has potential for improved vegetation production.
D. Apparent trend is upward.
E. Apparent trend is static or there is no apparent trend.
F. Apparent trend is downward.
G. Resource conflicts are significant.
H. Potential for a positive return on investment.
I. Percent of Federal land is low and/or small.

1/ Most significant criteria only.

APPENDIX C

SOILS FOUND IN THE RMP AREA

Most of the soils in the Lahontan RMP area are classified as aridic with sizeable areas receiving less than eight inches of precipitation per year. These aridic soils are found in virtually all of the intermontane basins in the RMP area. At locations on the valley floors, Pleistocene lake terraces and beaches, and alluvial fan piedmonts, soils are usually deep and well drained and have varying amounts of coarse fragments in the soil profile. As a rule the lower positions on the alluvial fans and the areas adjacent to remnant Pleistocene lake beds are fine textured and contain less coarse fragments (pebbles, cobbles and stones) than do soils higher up on the fan piedmont. Soils adjacent to Pleistocene lake beds also have relatively high percentages of excess salts, including sodium, which affects soil structure and permeability, and limits vegetative species composition. Some of these soils also have aquic moisture regimes due to high water tables in the spring months and some year-round. Those areas on the lower alluvial fan piedmont positions are sometimes suitable for reclamation for irrigated agricultural production. Those soils with clayey lacustrine sub-strata are much more difficult to leach and are best left undisturbed. Some of the alluvial fan piedmont soils are shallow with a silica cemented hardpan, and may contain a clayey or fine loamy textured horizon that contains excess sodium. Many of the low elevation mountain ranges and hills also have an aridic moisture regime. They have moderate to steep slopes and are generally shallow to weathered bedrock, containing high percentages of rock fragments. This aridic zone makes up most of the RMP area. The soils are low in productivity and are unsuitable for rangeland seedings and other vegetative manipulations.

The soils that offer the most opportunities for successful vegetative manipulations and rehabilitation generally occur on alluvial fan piedmonts above the 5500 foot elevation in the Xeric moisture zones. However these soils occupy only a small part of the RMP area. They include only parts of Edwards Creek Valley, the upper Bench Creek area, and an area just northeast of Eastgate. The rest of the soils in the Lahontan RMP area that fall in the Xeric moisture regime are located in the higher elevations of the Stillwater Mountains and in the Clan Alpine and Desatoya Mountains. These soils usually contain more than one percent organic matter, sometimes to one meter depth, and fall mostly in the frigid temperature zone.

Sediment Yield

Sediment yield estimates were derived using the method developed by the Pacific Southwest Interagency Committee (PSIAC), Water Management Subcommittee, Sedimentation Task Force in 1968 (BLM Manual 7317).

This method considers nine factors in estimating sediment yield. These are geology, soils, climate, runoff, topography, ground cover, land use, upland erosions, channel erosions, and sediment transport. The sediment yield characteristics of each factor are assigned numerical values representing their relative significance in the yield rating. These numerical values are summed and converted to tons per acre.

Changes in sediment yield were calculated by using different relative values in two factors in the PSIAC equation: land use and ground cover. Weighted values of -10 to +10 reflected the changes in wild horse and livestock grazing intensities and management (fencing, increases or decreases in AUMs, AMPs, etc.). Surface geology, soils, climate, runoff, and topography are not affected by changes in management. Upland erosion, and channel erosion and sediment transport are at present only slightly affected by management decisions.

APPENDIX D

STATE OF NEVADA WATER QUALITY CRITERIA FOR DESIGNATED BENEFICIAL USES

PARAMETER		AGRICULTURAL USE	AQUATIC LIFE Cold Water	AQUATIC LIFE Warm Water	BATHING & WATER CONTACT SPORTS	DRINKING WATER SUPPLY	WILDLIFE PROPAGATION
Temperature C Summer Maximum	<		23[a]	30[a]	15-34[a]		
Winter Maximum	<		14[a]	14[a]			
pH Units Single Value		4.5-9.0[b]	6.5-9.0[b]	6.5-9.0[b]	6.5-8.3[a]	5.0-9.0[b]	7.0-9.2[a]
Dissolved Oxygen Single Value-mg/l	>	Aerobic[b]	5.0[b]	5.0[b]	Aerobic[b]	Aerobic[b]	Aerobic[b]
Chlorides Single Value-mg/l	<						
Phosphates as P Single Value-mg/l	<		TO BE DETERMINED BY BIOASSAY				
Nitrates as N Single Value-mg/l	<	100[a]		90[b]			100[a]
Nitrates as N Single Value-mg/l	<	10[a]	0.05[f]	0.05[f]			10[a]
Un-ionized Ammonia Single Value-mg/l	<		0.02[b]	0.10[f]			
Total Dissolved Solids Single Value-mg/l	<	1000[b]				500[c]	
Turbidity, Single Value-NTU	<		10[d]	50[d]		250[e]	
Fecal Coliform (MF/100ml) Annual Geometric Mean	<	1000[a]			200[f]	2000[a]	1000[a]
Alkalinity Single Value-mg/l	>		20[b]	20[b]			30-130[a]
Suspended Solids Single Value-mg/l	<		80[a]	80[a]			
Sulfate Single Value-mg/l	<					250[b]	

PARAMETER	AGRICULTURAL USE	AQUATIC LIFE		BATHING & WATER CONTACT SPORTS	DRINKING WATER SUPPLY	WILDLIFE PROPAGATION
		Cold Water	Warm Water			
Arsenic		0.05[f]	0.05[f]		0.05[b]	
Copper	< 0.02[a]	0.01[f]	0.01[f]		1.0[b]	0.5[b]
Iron	< 5.0[a]	1.0[f]	1.0[f]		0.3[b]	
Manganese	< .2[b]	1.0[f]	1.0[f]		0.05[b]	0.1[a]
Mercury	< 2.0[a]	.05[f]	0.05[f]		5.0[b]	25.0[a]
Zinc	< .00005[b]	.00005[b]	.00005[b]		.002[b]	.00005[b]

REFERENCES & FOOTNOTES

a. National Academy of Sciences, Water Quality Criteria (Blue Book), 1972.
b. U.S. Environmental Protection Agency, 1976, Quality Criteria for Water (Red Book). EPA - 440/9-76-023. Office of Water and Hazardous Materials, Washington, D.C.
c. Nevada Division of Health, 1977. Water Supply Regulation, Part I. Water Quality Standards, Monitoring, Record Keeping and Reporting. State Board of Health, Carson City, Nevada.
d. Report of the Commission of Water Quality Criteria (FWCPA) - Green Book, 1968.
e. Water Treatment Plant Design (ASCE and AWWA) 1970.
f. State of Colorado 1978. Colorado Water Quality Control Commission Water Quality Standards, Adopted May 2, 1978; Effective July 20, 1978. Boulder, Colorado.
g. Approved and adopted by the Nevada State Environmental Commission on 8/12/80.

< means less than.
> means greater than.

(1) Fluoride limits vary from 1.4 mg/l to 2.4 mg/l based on the annual average of the maximum daily air temperature (see Reference c).

DEFINING CHARACTERISTICS OF ECOLOGICAL SITE POTENTIAL CATEGORIES

Ecological sites can be grouped as low potential, moderate potential, and high potential sites based upon their capability to improve in condition in response to grazing and/or mechanical treatments. The following defining characteristics were used as general guides to determine the potential of each ecological site encountered in the Lahontan vegetation condition inventory. To qualify for one of the three potential ratings, an ecological site could meet all or a combination of the characteristics defining a potential category. In a few cases conflicting characteristics existed and best professional judgment was used to make a category assignment.

The defining characteristics are as follows:

1) low potential sites:

   a) harsh growing conditions i.e.: shallow soil or soil with restrictive layer limiting root penetration, alkaline soil, eroded soil, etc.;
   b) range seedings are impossible because of rugged topography and/or will not succeed due to growing conditions;
   c) annual precipitation generally ranges from four to eight inches. On sites with greater than eight inches of precipitation annually, the effective moisture available is less than this because of harsh growing conditions;
   d) potential total annual biomass production generally is less than or equal to 500 pounds (even in favorable years);
   e) potential vegetative cover generally ranges from 15 to 25 percent with a maximum value of 30 percent on the most productive sites.

Improvement in ecological condition through increases in production, litter cover, density, and cover of desirable climax plant species takes a great deal of time on the low potential sites. Changes would be slow on the shrub dominated shadscale and/or Bailey greasewood types (Holmgren and Hutchings, 1972).

2) moderate potential sites:

   a) range seedings with suitable native or introduced forage species will succeed if slope and topography allow a seeding;
   b) soils are generally moderately deep to deep;
   c) annual precipitation generally ranges from eight to ten inches or the effective moisture available is equivalent to this precipitation zone during the growing season;
   d) total annual biomass production generally ranges from 400 to 700 pounds (some soils with production values significantly higher than this were assigned to the moderate category, rather than the high potential category, due to site domination by mountain mahogany);
   e) vegetative cover generally ranges from 20 percent to 30 percent with a maximum value of 40 percent on the most productive sites.

3) high potential sites:

   a) range seedings will succeed if slope and topography allow a seeding;
   b) soils are generally moderately deep to very deep;
   c) annual precipitation ranges from at least 10 inches to 14 inches, or extra moisture is available from runoff or high water table;
   d) total annual biomass production generally ranges from 600 to 1500 pounds, at least;
   e) vegetative cover generally ranges from 30 percent to 60 percent with a maximum value of 80 percent on the most productive sites.

Improvement in ecological condition on the moderate and high potential sites would occur at a much faster rate, but would be affected by initial condition and management practices.

These category characteristics were developed and the category assignments determined by BLM and SCS range specialists familiar with the sites, their potential, and responses to management.

Summary of Ecological Sites Encountered In The Lahontan RMP Area

Table 1 lists the assigned potentials for all the ecological sites encountered in the planning area. Once these potentials were determined, the percents of acres shifting from one condition class to another were estimated for each of the alternatives at twenty years in the future.

SUMMARY OF ECOLOGICAL SITES ENCOUNTERED IN THE LAHONTAN

Ecological Site Number and Potential Category [1/]	Ecological Site Name and [2/] Precipitation Zone (Inches per Year)	Production [3/] (Pounds per Acre)	Percent Cover	Percent Grasses, Forbs, and Shrubs
M 24-20	Droughty Loam 8-10" pz	700-450-300	15-25	50-5-45
M 26-17	Juniper Savannah 10-12" pz	700-600-500	30-40	5-10-40
L 26-22	Shallow Stony Loam 8-10" pz	600-450-300	20-30	45-10-45
L 26-24	Droughty Loam 6-8" pz	400-300-200	15-20	15-5-80
L 26-25	Claypan 8-10" pz	400-300-200	20-30	55-10-35
L 26-29	Eroded Slopes 8-12" pz	200-150-100	10-20	35-10-55
M 26-34	Wash 8-12" pz	1000-750-600	35-45	45-10-45
H 27-1	Wetland 4-8" pz	3000-2500-2000	40-50	90-5-5
H 27-2	Moist Floodplain 4-8" pz	3000-2500-2000	50-70	60-5-35
H 27-3	Loamy Bottom 4-8" pz	2500-1900-1200	30-60	80-5-15
H 27-4	Wet Meadow 10-14" pz	2500-1500-1000	50-60	90-5-5
H 27-5	Wet Sodic Bottom 4-8" pz	2000-1500-1000	40-60	70-5-25
H 27-6	Saline Bottom 4-8" pz	2000-1500-1000	20-25	65-5-30
M 27-7	Loamy Slope 8-10" pz	800-600-400	20-30	45-10-45
M 27-8	Loamy 8-10" pz	700-500-300	30-40	50-5-45
M 27-9	Sandy 6-8" pz	800-500-300	15-25	55-5-40
L 27-10	Gravelly Outwash 4-8" pz	700-500-200	15-25	45-5-50
M 27-11	Stony Slope 8-10" pz	600-400-200	15-25	40-10-50
M 27-12	Sodic Sands 4-8" pz	500-400-300	10-20	65-5-30
L 27-13	Loamy 6-8" pz	500-300-200	15-25	40-5-55
M 27-14	Silty 6-8" pz	400-300-200	10-20	35-5-60
M 27-15	Very Stony Loam 3-6" pz (S)	700-500-300	25-40	65-5-30
L 27-16	Sodic Dunes 4-8" pz	400-300-200	10-20	40-10-50
L 27-17	South Slope 4-8" pz	400-200-100	5-15	40-5-55
L 27-18	Gravelly Loam 4-6" pz	400-200-100	10-20	40-5-55
L 27-19	Shallow Stony Loam 3-6" pz	350-200-50	10-20	50-5-45
L 27-20	Claypan 8-10" pz	300-200-100	10-20	45-10-45
L 27-21	Shallow Granitic Upland 4-8" pz	300-200-100	10-20	45-10-45
L 27-22	Wash 4-8" pz	500-200-50	5-15	highly variable
L 27-23	Dunes 4-8" pz	300-200-100	5-15	30-5-65
L 27-24	Sodic Terrace 4-8"pz	300-150-50	10-15	20-10-70
L 27-25	Sodic Flat 4-8" pz	200-100-50	10-15	25-10-65

Elevation (100 ft.)	Physiographic Location	Associated Species
40-60	lower mtns., hills and piedmont slopes	Wyoming big sagebrush, spiny hopsage, Thurber needlegrass, Indian ricegrass
45-60	alluvial fans, terraces, sloping uplands	western juniper, Wyoming big sagebrush, antelope bitterbrush
45-55	side slopes of foothills	Wyoming big sagebrush, green ephedra, desert needlegrass
44-52	alluvial fans	Wyoming big sagebrush
50-60	old terraces & uplands	low sagebrush, Thurber needlegrass & squirreltail
50-60	sideslopes & dissected fans, terraces	Wyoming big sagebrush, purple sage, desert needlegrass
53-58	drainages & washes within mtns. & foothills	basin big sagebrush, antelope bitterbrush, basin wildrye
35-55	level land near springs, seeps & ponds	cattails, rushes & sedges
35-55	broad floodplains	basin wildrye, western wheatgrass, basin big sagebrush
45-60	dissected floodplains, drainages, upland valleys	basin wildrye, western wheatgrass, basin big sagebrush, desert peach
50-80	along streams, valley bottoms, near seeps & springs	sedges, rushes, tufted hairgrass, Nevada bluegrass
35-50	alluvial flats	inland saltgrass, alkali sacaton, basin wildrye, black greasewood
35-55	upper alluvial flats & lower fan skirts	basin wildrye, inland saltgrass, black greasewood, shadscale
50-65	mountain & foothill slopes	pine bluegrass, Thurber needlegrass, Wyoming big sagebrush, spiny hopsage
45-60	terraces, alluvial fans, fan remnants	pine bluegrass, Thurber needlegrass, Indian ricegrass, Wyoming big sagebrush
40-55	fan remnants & inset fans	Indian ricegrass, needle and thread, fourwing saltbush, Bailey greasewood
40-55	all alluvial fans	Bailey greasewood, Indian ricegrass, desert needlegrass, shadscale
50-60	mountain & foothill sideslopes	pine bluegrass, Wyoming big sagebrush, Nevada ephedra, desert needlegrass
40-45	alluvial fans & lake terraces	Indian ricegrass, needle and thread, black greasewood, winterfat
39-45	fan remnants & old lake terraces	shadscale, bud sagebrush, Indian ricegrass, squirreltail
40-55	fan skirts & old lake terraces	winterfat, Indian ricegrass, bud sagebrush
42-65	upper fan remnants & foothill slopes	galleta grass, Indian ricegrass, Bailey greasewood, shadscale
38-55	partially stabilized dunes	Indian ricegrass, black greasewood, hairy horsebrush, needle and thread
45-60	mountain side slopes	desert needlegrass, Indian ricegrass, littleleaf horsebrush, shadscale
40-55	fan remnants & old lake terraces	Indian ricegrass, shadscale, Bailey greasewood, bud sagebrush
40-55	mountain, foothill & fan remnant side slopes	shadscale, Bailey greasewood, galleta grass, desert needlegrass
50-65	higher terraces, fan remnants & mtn. side slopes	low sagebrush, pine bluegrass, Thurber needlegrass
40-55	foothills & mtn. side slopes	desert needlegrass, Indian ricegrass, littleleaf horsebrush, Nevada ephedra
35-55	alluvial fans & foothill drainages	littleleaf horsebrush, spiny hopsage, Bailey greasewood, Indian ricegrass
40-50	eaolian deposits	hairy horsebrush, fourwing saltbush, Indian ricegrass, needle and thread
40-50	low beach terraces & fan skirts	Bailey greasewood, black greasewood, Indian ricegrass, bud sagebrush
35-45	lower fan skirts & upper alluvial flats	black greasewood, shadscale, Indian ricegrass, seepweed

(Continued) SUMMARY OF ECOLOGICAL SITES ENCOUNTERED IN THE LAHONTAN

Ecological Site Number and Potential Category 1/	Ecological Site Name and 2/ Precipitation Zone (Inches per Year)	Production 3/ (Pounds per Acre)	Percent Cover	Percent Grasses, Forbs, and Shrubs
L 27-26	Eroded Slope 4-8" pz	200-100-50	5-10	30-10-60
L 27-27	Very Shallow Loam 4-8" pz	150-100-50	5-10	40-10-50
L 27-28	Loamy Slope 6-8" pz	500-400-300	20-30	40-5-55
L 27-29	Wash 8-10" pz	800-500-100	10-20	highly variable
L 27-30	Gravelly Loam 6-8" pz	400-300-200	20-30	40-10-50
L 27-31	Droughty Loam 6-8" pz	500-300-200	10-20	35-5-60
L 27-32	Shallow Calcareous Loam 8-10" pz	600-400-200	20-30	50-5-45
L 27-33	Shallow Stony Loam 3-6" pz (S)	400-200-100	10-20	50-5-45
L 27-34	Stony Loam 4-8" pz	500-300-200	15-30	40-5-55
M 27-35	Loamy 8-10" pz (S)	700-500-400	20-30	40-5-55
L 27-36	Sodic Outwash 3-6" pz (S)	200-100-50	5-10	20-10-70
L 27-37	Limy Slope 4-8" pz (S)	500-300-200	10-20	40-5-55
M 27-38	Sandy 3-6" pz (S)	400-300-200	15-25	50-5-45
M 27-39	Silty 3-6" pz (S)	500-300-200	20-30	45-5-50
L 27-40	Gravelly Fan 6-8" pz (S)	400-300-200	10-20	40-10-50
H 27-41	Deep Sodic Fan 4-8" pz	1500-1000-600	20-30	20-10-70
H 27-42	Saline Terrace 4-8" pz	1500-1100-600	15-25	20-5-75
L 27-43	Gravelly Loam 3-6" pz (S)	300-200-100	5-10	35-5-60
27-44	Not Used			
M 27-45	Sandy 8-10" pz	700-500-400	15-20	55-5-40
M 27-46	Claypan 10-12" pz	500-400-300	15-25	45-15-40
L 27-47	Shallow Granitic Upland 4-8" pz	450-250-100	10-20	45-5-50
L 27-48	Chalky Knolls 8-10" pz	200-100-50	5-10	35-10-55
L 27-49	Claypan 8-10" pz (S)	350-250-150	10-20	45-10-45
L 27-50	Mtn. Ridges 12-16" pz	350-250-150	10-25	50-15-35
L 27-51	South Slope 8-10" pz	300-200-100	5-15	40-5-55
H 27-52	North Slope 12-16" pz	1500-1200-850	30-60	65-10-25
L 27-53	Dunes 8-10" pz	600-450-300	5-15	40-10-50
M 27-54	Loamy Slope 10-12" pz	1000-800-600	20-35	55-10-35
L 27-55 *	Mtn. Ridges 12-16" pz	300-200-100	5-15	55-10-35
H 27-56	Snow Pockets 12-14" pz	1400-1100-800	50-70	55-5-40
H 27-57	Loamy 14-16" pz	1800-1400-1000	40-60	55-10-35
H 27-58	Loamy 12-14" pz	1200-1000-800	40-60	55-5-45
L 27-59	Shallow Calcareous Loam 6-8" pz (S)	600-400-300	15-30	40-5-55
M 27-60	Sandy 3-5" pz	600-300-100	10-20	50-5-45
L 27-61	Shallow Calcareous Loam 6-8" pz	300-200-100	5-15	25-5-70
M 27-62	Mahogany 7-9" pz	1500-1000-700	15-30	15-5-80
M 27-63	Mahogany, south 7-9" pz	800-500-300	10-20	15-5-80

1/ L = low potential M = moderate potential H = high potential

2/ S = Summer precipitation zone

3/ in favorable, normal and unfavorable years

* Correlated with 27-50 following the Lahontan vegetation condition inventory.

Source: SCS Range site descriptions available at the Carson City District Office

Elevation (100 ft.)	Physiographic Location	Associated Species
45-55	sideslopes of dissected fans & terraces	Bailey greasewood, shadscale, Indian ricegrass, winterfat
45-55	sideslopes of foothills & fan remnants	Indian ricegrass, shadscale, Bailey greasewood, galleta grass
50-60	fan remnants, higher lake terraces	pine bluegrass, shadscale, bud sagebrush
50-70	drainages & washes within mtns. & foothills	basin big sagebrush, spiny hopsage, rabbitbrush, Sandberg bluegrass
40-60	foothill slopes & upper alluvial fans	shadscale, Bailey greasewood, pine bluegrass, bud sagebrush
45-55	alluvial fans & foothill sideslopes	spiny hopsage, bud sagebrush, Indian ricegrass, galleta grass
50-65	inset fans, mtn. & foothill sideslopes	black sagebrush, pine bluegrass, shadscale, Thurber needlegrass
42-49	sideslopes of fan remnants & foothills	galleta grass, Indian ricegrass, shadscale, spiny menodora
40-60	sideslopes & tops of dissected fans, foothills & mtns.	shadscale, Indian ricegrass, galleta grass, spiny menodora
45-60	inset fans & mtn. footslopes	galleta grass, Wyoming big sagebrush Indian ricegrass, spiny hopsage
40-50	low alluvial flats & fan skirts	black greasewood, shadscale, Indian ricegrass, Coopers wolfberry
45-60	fan remnants, foothills, mtn. slopes	galleta grass, Anderson wolfberry, Indian ricegrass, spiny menodora
40-55	lower fan remnants, fan skirts, inset fans	galleta grass, Indian ricegrass, fourwing saltbush, Bailey greasewood
50-60	fan skirts & lower fan remnants	winterfat, galleta grass, bud sagebrush, fourwing saltbush
45-55	fan remnants & fan skirts	galleta grass, spiny hopsage, bud sagebrush, Bailey greasewood
35-50	fan skirts & alluvial flats	quailbush, inland saltgrass, fourwing saltbush, black greasewood
35-50	upper alluvial flats & fan skirts	fourwing saltbush, Indian ricegrass, shadscale, black greasewood
40-55	fan piedmonts, inset fans & low mtn. footslopes	Coopers wolfberry, Bailey greasewood, shadscale, Indian ricegrass
50-60	mtn. valley fans	Indian ricegrass, western wheatgrass, Wyoming big sagebrush
55-65	upland ridges & sideslopes	low sagebrush, pine bluegrass, Idaho fescue, Utah juniper
45-60	foothills & mtn. slopes	desert needlegrass, littleleaf horsebrush, Anderson wolfberry, galleta grass
50-65	mtn. sideslopes	black sagebrush, Indian ricegrass, shadscale, Utah juniper
50-65	upper terraces, fan remnants & mtn. sideslopes	low sagebrush, galleta grass, desert needlegrass
65-95	mtn. ridges, sideslopes & plateaus	low sagebrush, Idaho fescue, black sagebrush, Webber ricegrass
50-65	sides of fan piedmonts, mountain & foothill sideslopes	Wyoming big sagebrush, desert needlegrass, purple sage, black sagebrush
60-90	mtn. sideslopes with north aspect	Idaho fescue, mtn. big sagebrush, bluebunch wheatgrass
45-55	partially stabilized dunes	Indian ricegrass, fourwing saltbush, Nevada ephedra, needle and thread
60-75	mtn. sideslopes	Wyoming big sagebrush, pine bluegrass, Thurber needlegrass
60-90	higher mtn. ridges and sideslopes	low sagebrush, black sagebrush, Thurber needlegrass, Sandberg bluegrass
65-80	inset mtn. valley fans & upland terraces	basin wildrye, mtn. brome, oceanspray, snowberry
70-90	mtn. sideslopes & concave depressions	mtn. brome, slender wheatgrass, Idaho fescue, mtn. big sagebrush
65-80	upland terraces & north facing mtn. sideslopes	mtn. big sagebrush, Thurber needlegrass, basin wildrye, snowberry
60-80	mtn. & foothill sideslopes, toe slopes & piedmont surfaces	black sagebrush, galleta grass, Indian ricegrass
40-55	fan piedmonts & inset fans in foothills	Indian ricegrass, fourwing saltbush, Coopers wolfberry, dalea
60-80	mtn. & foothill sideslopes generally south aspect	black sagebrush, desert needlegrass, Bailey greasewood, spiny menodora
60-75	mtn. sideslopes & ridges usually north & east aspect	littleleaf mtn. mahogany, black sagebrush, needlegrass
60-75	mtn. sideslopes & ridges usually south aspect	littleleaf mtn. mahogany, desert needlegrass, spiny menodora, black sagebrush

INTERPRETATION OF ECOLOGICAL CONDITION

The Lahontan vegetation inventory analyzed vegetation condition based upon the relative degrees to which the kinds, proportions, and amounts of plants in the present communities resemble those of the potential climax plant communities for the ecological sites identified in Table 1. There are four ecological condition classes identified in this method, excellent, good, fair, and poor. These classes are often equated to the climax, late seral, mid seral, and early seral succession stages, respectively.

The ecological condition classes imply a connotation of value, i.e., good, fair, etc., for an area. This may not always be an appropriate interpretation since it is based upon a comparison to some potential or ideal vegetation composition without considering such factors as existing or proposed uses and management practices.

Often it is assumed that it is best to manage the range for the highest ecological condition possible. This, however, is not always the case. The vegetation composition best suited to particular needs may occur in lower ecological condition classes.

For instance, if resource and management needs (e.g., maximum vegetation cover for soil stability, or the highest percentage of palatable forage for livestock, deer, and/or wild horse, etc.) can be met in a particular area by fair (mid seral) ecological condition, it may be much more practical and feasible, perhaps due to limited or deteriorted site potential (Appendix G, Part 1), to manage for that condition, rather than good or excellent ecological condition.

METHODOLOGY FOR ESTIMATING THE DEGREE OF CHANGE IN VEGETATION CONDITION

The methodology used to project the change in ecological condition, forage condition, and trend for each management alternative over a 20 year period involved four major steps. These steps included: 1) analysis of allotment trend and determination of the degree of impact of present or proposed management on the vegetation resource, 2) determination of the response potential category for each ecological site, 3) estimation of standard response factors for each ecological site potential category and management impact category, and 4) calculation of the anticipated response in vegetation condition expressed in terms of acres shifting from one condition class to another.

Present allotment trend was determined from results of trend studies which were conducted using the photo-plot measurement method described in BLM Manual 4412. The relative degree of management impact was predicted after analyzing the following existing or proposed criteria: 1) periods-of-use, 2) amount of livestock use, 3) kind of livestock, 4) livestock distribution (Table 1), 5) management systems, and 6) vegetative treatments. This analysis was performed by professional range conservationists familiar with the ecological sites, site potentials, topography, range improvements, livestock and wild horse use, and management of each allotment.

After analyzing the above criteria for each allotment the degree of impact was ranked in one of four categories of high, moderate, low or no change, using form 1, Degree of Impact.

Each ecological site was then grouped with similar sites into either the sagebrush-bunchgrass or salt-desert shrub vegetation zones (figure 1) and assigned a response rating of high, moderate, or low. These ratings were based upon each site's potential in terms of expected change in plant species composition from the existing plant community. Assignments were determined by BLM and SCS range conservationists. Factors considered in these ratings included soil moisture availability, soil fertility, soil depth, species composition, total productivity, topography and physical limitations, i.e.; extreme stoniness or slope (Appendix E).

Standard response factors for each ecological site potential category and management impact category were estimated by the same group of range conservationists. Two general assumptions were considered when assigning cover type response potentials. These were: 1) the total herbage production of low potential sites generally includes a lower percentage of highly palatable forage species in the climax communities. The palatable species on these sites are generally more sensitive to the deleterious effects of improper grazing use since available moisture and effective rooting depth are usually more limiting. Therefore, these sites may deteriorate in ecological condition rather rapidly with the loss of the few species of grasses and forbs. Because of the harshness of these sites, recovery requires a greater amount of time or may not occur at all. These sites are generally dominated by the less palatable shrub species at climax, so, although the unpalatable shrubs increase in abundance as a result of deteriorating condition, the degree of ecological condition deterioration is not as great. Such a lesser degree of vegetation change may result in fewer, less severe impacts to the vegetation resource and its uses; and 2) the inverses of the above mentioned relationships exist in the moderate and high potential range sites. These sites have a higher percentage of palatable forage species in the climax communities. They are more resistant to the damaging effects of improper grazing because of the greater moisture availability. Generally, ecological condition deterioration is not as rapid, and recovery (with the same amount of management effort) can occur more quickly if site properties are not significantly altered.

Since these sites have a greater percentage of highly palatable forage species represented in the climax community, the degree of ecological condition deterioration that may occur is much greater. The greater relative amount of vegetation change may result in more severe impacts to the vegetation resource and its uses. In addition to these assumptions, the management criteria and site factors mentioned above were considered during the estimation of these response factors. The Degree of Change matrix displays these results.

The acres within each allotment were compiled by vegetation zone, ecological condition and/or forage condition class and response potential category using Form 2, Present and Projected Acres by Condition Class. The Resource Protection, Mid-Range, and Commodity Production alternatives propose the disposal of some public land. The acres identified for disposal were also compiled for each alternative in the manner just described. These acres were then subtracted from the appropriate vegetation zone, condition class, and potential category summaries for the affected allotments. The Resource Protection alternative proposes the disposal of 588 acres within a grazing allotment. Of the total 588 acres, 94 percent have fair condition and six percent have good condition; 68 percent have low potential, five percent have moderate potential, and 27 percent have high potential.

The Mid-Range and Commodity Production alternatives propose the disposal of 114,680 acres of public land within grazing allotments. This action would mean the loss of 21,830 acres (one percent), 61,105 acres (three percent), 10,550 acres (one-half percent), and 80 acres in the poor(early seral), fair (mid seral), good (late seral), and excellent ecological condition classes, respectively. This also equates to 69,828 acres (75 percent), 13,447 acres (14 percent), and 10,290 acres (11 percent) in the low, moderate, and high potential categories, respectively. In summary, approximately 90 percent of the land proposed for disposal is in either poor or fair ecological condition. Also, 75 percent of these lands have low potential. This indicates that the average condition and potential of the acreage remaining after land disposal is higher. Thus, the relative degree of improvement possible on these acres is greater.

Once the total acres, or the acres remaining after land disposal (as the case may be), were compiled, the acres in each response category and condition class were subjected to a standard analysis.

Using the results of the Degree of Impact analysis (step 1) and the Degree of Change matrix, the expected response in vegetation condition was expressed in terms of acres shifting from one vegetation condition class to another. For example, in the Bass Flat allotment (#3002) there exist 4100 acres of moderate potential salt-desert shrub rangeland in fair ecological condition, and 6485 acres in good ecological condition. Under the No Action alternative, a low beneficial effect on the vegetative resource is expected from present management. Therefore, referencing the matrix, ten percent of the good condition moderate potential acres would improve to excellent condition and ten percent of the fair condition acres would improve to good condition. The results for this specific example will be 3690 acres, 6247 acres, and 648 acres in the fair, good, and excellent ecological condition classes, respectively. In the Dixie Valley Allotment (#3018) there exist 7662 acres of low potential sagebrush-bunchgrass rangeland in poor ecological condition, 4507 acres in fair ecological condition, and 3705 acres in good ecological condition. Under the same alternative, a detrimental effect of a low degree of impact is expected on the vegetative resource. Referencing the matrix, ten percent of the fair condition, low potential acres would deteriorate to poor condition, and ten percent of the good condition, low potential acres would deteriorate to fair condition. The results expected are 8113 acres, 4427 acres, and 3334 acres in poor, fair, and good ecological condition classes, respectively.

This methodology was employed for all allotments in each of the planning alternatives. These results were summarized by individual ecological and/or forage condition class for each allotment.

The No Action, Resource Protection, Mid-Range and Commodity Production alternatives could include the harvest of 5000, 3200, 3710, and 3995 acres, respectively, of mature pinyon/juniper stands. This harvest would occur over a 20 year period. Generally, these stands currently have an average overstory canopy cover of 60 percent, very little understory cover and production, low potential, and a poor forage condition rating (BLM Forest Inventory, 1982). Due to the limited seed source of highly palatable perennial grasses, forbs, and shrubs, harvest of these stands would result primarily in the slow establishment of annual grasses and forbs, along with a combination of shrubs including sagebrush, rabbitbrush, gooseberry, and horsebrush. There would be a gradual increase in forage production and condition on these areas in the long term, but within 30 years of harvest, the tree species would establish themselves again and understory production would subsequently decline.

Future vegetation condition and the net increase in forage production was not calculated for these acres due to a lack of data. Based on professional judgment, condition would not improve beyond the fair class, and the net increase in production would be minimal.

APPENDIX G
Table 1
LAHONTAN RMP-UTILIZATION DATA

		CURRENT UTILIZATION (ACRES)							
ALLOTMENT	ACRES	SEVERE (81-100%)	HEAVY (61-80%)	MODERATE (41-60%)	LIGHT (21-40%)	SLIGHT (0-20%)	UNUSEABLE	NON-USE	UTIL. (Allot. Average)
Adriance Valley	31,790		1,972	7,148	4,918	17,752			29
Bass Flat	46,789		12,660	6,245	2,440	10,880	14,564		42
Bell Flat	91,855	13	42,534	10,866	6,158	12,377	19,907		52
Boyer Ranch	127,194		1,272	3,039	22,815	34,817	65,251		28
Bucky O'Neill	39,054		17,448	1,741	2,716	7,235	9,914		50
Churchill Butte	9,843					9,843			10
Clan Alpine	296,791	2,229	122,842	89,674	19,821	12,782	49,443		57
Cleaver Peak	41,229		1,042	7,692	7,139	25,356			40
Clifton Flat	7,589				2,530	5,059			9
Copper Kettle	74,555	43	16,535	9,687	1,109	8,417	38,764		51
Cow Canyon	125,484		21,939	28,428	14,674	21,594	38,849		44
Dead Horse Well	77,013							77,013	10
Desert Mountain	22,417			4,473	3,643	14,301			39
Dixie, Hare, Miss.	282,801	1,337	35,579	94,191	46,714	104,980			44
Eastgate	306,411	177	93,444	68,049	45,840	51,120	43,242	4,539	48
Edwards Creek	58,820	66	14,469	7,679	4,731	11,987		19,888	33
Fort Churchill	15,059		1,411	2,224	2,183	2,955	6,286		36
Frenchman Flat	67,126	135	7,999	13,281	9,891	27,857	7,963		31
Hole-in-the-Wall	84,204	2,950	35,666	29,262	5,819	10,507			55
Horse Mountain	63,043		9,788	14,315	12,238	26,702			48
Horse Springs	15,224	110	1,279	6,466	1,998	5,371			38
LaBeau Flat	139,428		31,870	5,067	5,665	23,672	56,144	17,010	37
Lahontan	52,910		7,591	8,532	9,043	27,744			36
Mtn. Well/La Plata	137,685	1,278	21,241	7,773	22,056	81,199	4,138		43
Phillips Well	43,276	9	6,585	5,566	13,579	6,723	10,814		38
Rock Springs	28,394		6,064	2,686	2,913	2,942	13,789		46
Salt Wells	58,611		8,889	7,013	7,473	8,996	26,240		43
Stockton Flat	9,582		236	741	880	7,725			26
Truckee/Virginia	21,369	1,033	1,505	2,151	6,675	10,005			37
White Cloud	79,663	16	8,775	10,348	7,215	36,951	16,358		30
New Pass 1/	4,328								
TOTALS	2,459,537	9,396	530,635	454,337	292,876	627,849	421,666	118,450	38

1/ No data is available for that portion of the New Pass Unit of the Mount Airy allotment (Battle Mountain District) within the Lahontan RMP area. The Mount Airy allotment was analyzed on the Shoshone-Eureka RMP prepared in the Battle Mountain District.

Form #1

DEGREE OF IMPACT

Alternative ______________________

Allotment ________________________

Degree of Impact

Mgt. Action	Downward Trend Negative Impacts -5	-4	-3	-2	-1	0	1	2	3	4	Upward Trend Positive Impacts 5
1) Period-of-Use											
2) Level of Util.											
3) Kind of Livestock											
4) Use Dist.											
5) Mgt. System											
6) Veg. Treatment											

Sum of Impact Indices ______

Degree of Impact
Indicated by Sum of Impact Indices

Negative ←					Positive →
high	mod	low	low	mod	high
-21 to -30	-11 to -20	0 to -10	0 to +10	+11 to +20	+ 21 to +30

Figure 1
Ecological Site Assignment to Vegetation Zones

Sagebrush-bunchgrass

low potential sites - In MLRA D-27, the following range sites qualify: 27-20, 27-21, 27-29, 27-32, 27-48, 27-49, 27-50, 27-51, 27-55, 27-59, 27-61 and in MLRA D-24, 24-20, and in MLRA D-26, 26-22, 26-24, 26-25, and 26-29.

moderate potential sites - MLRA D-27, the following range sites qualify: 27-07, 27-08, 27-11, 27-35, 27-45, 27-46, 27-54, 27-62, and 27-63, and in MLRA D-26, 26-17 and 26-34.

high potential sites - In MLRA D-27, the following range sites qualify: 27-02, 27-03, 27-04, 27-52, 27-56, 27-57, and 27-58

Salt-desert shrub

low potential sites - In MLRA D-27, the following range sites qualify: 27-10, 27-13, 27-16, 27-17, 27-18, 27-19, 27-22, 27-23, 27-24, 27-25, 27-26, 27-27, 27-28, 27-30, 27-31, 27-33, 27-34, 27-36, 27-37, 27-40, 27-43, 27-47, and 27-53

moderate potential sites - In MLRA D-27, the following range sites qualify: 27-05, 27-09, 27-12, 27-14, 27-15, 27-38, 27-39, and 27-60.

high potential sites - MLRA D-27, the following range sites qualify: 27-01, 27-06, 27-41, and 27-42.

All Woodland Sites were assumed to have low potential for recovery since correlated soils are generally shallow and/or stoney and support juniper and/or pinyon pine at climax.

ESTIMATE OF DEGREE OF CHANGE

	Management Impact Categories 1/						
	Low		Moderate		High		
TREND 2/	up	down	up	down	up	down	static
ECOLOGICAL SITE RESPONSE POTENTIAL 3/							
Low	+5	-10	+10	-15	+10	-15	0
Moderate	+10	-15	+15	-20	+35	-30	0
High	+15	-10	+20	-15	+45	-20	0

1/ The relative degrees of impact resulting from proposed management actions. These relative determinations were made for each allotment in each alternative during the analysis of impacts.

2/ Projected trend determined during the analysis of impacts.

3/ Appendix E

Form #2

PRESENT AND PROJECTED ACRES BY CONDITION CLASS

ALLOTMENT

ALTERNATIVE

PRESENT SITUATION

PROJECTED SITUATION

SAGEBRUSH-STEPPE

		ECOLOGICAL CONDITION				ECOLOGICAL CONDITION			
		POOR	FAIR	GOOD	EXCELLENT	POOR	FAIR	GOOD	EXCELLENT
POTENTIAL	LOW								
	MODERATE								
	HIGH								

	FORAGE CONDITION				FORAGE CONDITION			
	POOR	FAIR	GOOD	EXCELLENT	POOR	FAIR	GOOD	EXCELLENT
WOODLAND								
SEEDING[1]								

SALT DESERT SHRUB

		ECOLOGICAL CONDITION				ECOLOGICAL CONDITION			
		POOR	FAIR	GOOD	EXCELLENT	POOR	FAIR	GOOD	EXCELLENT
POTENTIAL	LOW								
	MODERATE								
	HIGH								

---

[1] Note potential

METHODOLOGY FOR PROJECTING RELATIVE CHANGES IN VEGETATIVE PRODUCTIVITY

The following table lists average initial stocking rates for each ecological site response potential category. These average values were developed from a large group of similar ecological sites in each ecological site response potential category. They are intended for analytical purposes only. Actual grazing use levels will be determined by further monitoring studies and public input.

Favorable Year Average Initial Stocking Rates
(Ac/AUM)

Response Potential Category	Condition Class Poor	Fair	Good	Excellent
Low	60-80	35-45	20-25	15-20
Moderate	30-40	15-20	8-10	5-10
High	10-15	4-6	2-4	1-3

Source: SCS Range Site Descriptions

It should be noted that these stocking rate values are for favorable years with above average vegetation production. Poor condition low potential sites vary widely in production from less favorable to favorable years, while generally, there is less deviation in production on the better condition moderate potential sites and on the high potential sites.

As stated in Appendix G, Part 1, the present condition was summarized, and future condition projected and summarized, on Form #2 for those allotments with predicted changes in vegetation condition and trend in any of the four alternatives.

The relative changes in vegetative productivity were determined for these allotments in each alternative by dividing the acres summarized on Form #2 by the appropriate, corresponding initial stocking rate values listed in the above table.

For example: 2,590 acres with moderate potential and good condition at the present may increase to 3,500 acres with moderate potential and good condition in the future under the Resource Protection alternative. Examination of the above table shows an average initial stocking rate of 8-10 Ac/AUM for moderate potential sites in good condition. Dividing 2,590 acres and 3,500 acres by the midpoint of this average initial stocking rate would yield 288 AUMs and 389 AUMs, respectively. This type of calculation was completed for each individual acreage figure listed by vegetation zone, resource potential category, and condition class (Form #2) in the present and projected situations. The resulting AUM values were then totaled for the present and the future projected situation and a relative percentage change in total AUMs was determined.

The AUM figures calculated in this approach for the present and projected situations may tend to be optomistic, but the above initial stocking rate values were applied in the same manner for both situations under each alternative, so relative comparisons are possible. Analysis included comparing each allotment's projected relative changes in vegetative productivity to each individual allotment's three-year average utilization or grazing preference level.

METHODOLOGY FOR PROJECTING VEGETATION CONDITION AND PRODUCTION FOR VEGETATION TREATMENTS

The net increase in production associated with the proposed vegetation treatments was determined using the following methodology. This method involves five major steps:

1) The Lahontan vegetation inventory field writeups for the proposed treatment areas were reviewed to determine the present species composition, vegetation condition and production.

2) The appropriate ecological site descriptions, soil map unit descriptions and the methodology in Appendix E and G were used to determine site potential.

3) If the proposed vegetation treatment is a release treatment, an estimate of future species composition, vegetation condition and production was made using the vegetation inventory field writeups of successful vegetation treatments on similar sites.

4) If the proposed vegetation treatment is a seeding of palatable perennial grasses, forbs and shrubs on a site which has at least moderate potential, an initial stocking rate value of five acres/AUM was used to project future production (Eckert, 1981).

5) The net AUM increase for each treatment was determined by comparing the projected production to the present production indicated by the Lahontan vegetation inventory.

RECREATION USE FORMULATION

Random ORV use rate changes are based on projected population increases for Churchill County, Nevada, as shown in Preliminary Nevada Forecasts: 1980-2000, Nev. Bureau of Business and Economic Research, July 1982.

Hunting use rate changes are assumed to be proportional to AUM gains or losses and subsequent permit increases or reductions as reflected in the Lahontan RMP.

Backcountry recreation use rate changes are based on Trends in Recreational Use of National Forest Wilderness, U.S.D.A., Forest Service Research Note Int.-319, August 1981.

Base (present) use levels are based on current traffic counter, visitor and trail register counts and professional judgment, and were extrapolated (see Recreational Use of LRA WSAs - Lahontan Wilderness Technical Report).

APPENDIX I

GEOLOGY

Rock Units

Rocks within the study area range in age from upper Paleozoic to Quaternary. The oldest rocks are exposed on the west slope of the New Pass Mountains and may be correlative with the rocks of the Pennsylvanian and Permian Havallah sequence. Triassic and Jurrasic fine grained clastic sediments are the most widespread Mesozoic units in the area with Jurassic mafic igneous rocks and Cretaceous granitic rocks less common. Volcanic rocks and lacustrine and fluviatile sedimentary deposits are the chief units of the Cenozoic Era. The volcanic rocks typically occur in the highlands and are Tertiary in age while the sedimentary rocks typically occur in the valleys as alluvial fans and lake deposits and are of Quaternary age.

Structural Geology

Structural features of Paleozoic age are poorly exposed in the area, however, folding in the Paleozoic rocks of the New Pass Mountains suggest deformation during the Sonoma orogeny. Folds and thrusts, the results of a Middle Jurrasic orogeny, typify structures of the Mesozoic Era and are much more common to the area than the older structures. Repeated uplifts and folding are characteristic structural features of the Tertiary period and suggest a compressional style of deformation. Normal faults of Quaternary age are ubiquitous in the area and suggest east-west extensional stresses, which continue to date.

TABLE 1 - IMPACTS TO GEOLOGY, ENERGY, AND MINERALS RESULTING FROM WILDERNESS DESIGNATION UNDER EACH ALTERNATIVE

	RESOURCE PROTECTION (ALL WILDERNESS)	MID-RANGE	RESOURCE PRODUCTION	NO ACTION (NO WILDERNESS)	PREFERRED
Clan Alpine Mountains	196,128 ac. withdrawn	158,504 ac. withdrawn	68,458 ac. withdrawn		68,458 ac. withdrawn
	451 mining claims	173 mining claims	29 mining claims		29 mining claims
	5,800 ac. geo. ls.			none	
	118,000 ac. O&G ls.	100,000 ac. O&G ls.	24,000 ac. O&G ls.		24,000 ac. O&G ls.
	191,600 ac. mod.fav./met.	125,00 ac. mod. fav./met.	68,500 ac. mod. fav./met.		68,500 ac. mod.fav./met.
	3,100 ac. high fav./met.	3,000 ac. high fav./met.			
	190,800 ac. mod. fav./geo.	158,500 ac. mod. fav./geo.	68,500 ac. mod fav./geo.		68,500 ac. mod. fav./geo.
	5,300 ac. high fav./geo.				(same as Resource Prod.)
Stillwater Range	94,607 ac. withdrawn	29,797 ac. withdrawn			
	594 mining claims	14 mining claims			
	11,000 ac. geo. ls.	2,200 ac. geo. ls.	none	none	none
	18,000 ac. O&G ls.				
	87,600 ac. mod.fav./met.	29,800 ac. mod.fav./met.			
	2,000 ac. high fav./met.				
	67,700 ac. mod. fav./geo.	29,800 ac. mod. fav./geo.			
	26,900 ac. high fav./geo.				
	16,500 ac. mod. fav./O&G				(same as No Action)
Desatoya Mountains	51,262 ac. withdrawn	43,096 ac. withdrawn	25,498 ac. withdrawn		43,096 ac. withdrawn
	2,100 ac. O&G ls.	2,100 ac. O&G ls.			2,100 ac. O&G ls.
	13,000 ac. mod.fav./met.	3,600 ac. mod.fav./met.	2,000 ac. mod.fav./met.	none	3,600 ac. mod.fav./met.
	13,000 ac. mod. fav./geo.	3,600 ac. mod. fav./geo.	100 ac. mod. fav./geo.		3,600 ac. mod. fav./geo.
	40 ac. mat. site R/W	40 ac. mat. site R/W	40 ac. mat. site R/W		40 ac. mat. site R/W
					(same as Mid-Range)
Job Peak	90,209 ac. withdrawn	37,477 ac. withdrawn	20,522 ac. withdrawn		
	235 mining claims	74 mining claims	25 mining claims		
	15,200 ac. geo. ls.	640 ac. geo. ls.	640 ac. geo. ls.	none	none
	9,800 ac. O&G ls.	100 ac. O&G ls.	100 ac. O&G ls.		
	85,260 ac. mod.fav./met.	32,700 ac. mod.fav./met.	14,700 ac. mod.fav./met.		
	51,200 ac. mod. fav./geo.	36,000 ac. mod. fav./geo.	19,100 ac. mod. fav./geo.		
	39,000 ac. high fav./geo.	1,400 ac. high fav./geo.	1,400 ac. high fav./geo.		
	24,000 ac. mod. fav./O&G				(same as No Action)

Source: GEM (1983); BLM - Feb.-April, 1983

Legend:
geo. ls. - geothermal lease
O&G ls. - Oil and Gas lease
mod. fav./O&G - moderate favorability oil/gas
mod. fav./met. - moderate favorability metallic minerals
mod. fav./geo. - moderate favorability geothermal
mat. site R/W - material site right-of-way

WILDERNESS STUDY POLICY AND PLANNING CRITERIA

The primary goal of the BLM wilderness study process is to recommend for wilderness designation those areas for which it has been determined, through the multiple resource planning process and public involvement, that wilderness is the most appropriate alternative use of the land and its resources. The two planning criteria and six quality standards described below will be used in making the analysis on which that determination will be based. These criteria and quality standards will be applied to wilderness study areas (WSAs) through the BLM planning process, and each criterion and quality standard will be fully considered and documented in determining whether a WSA is more suitable for wilderness or for other uses and in making all BLM wilderness recommendations, both "suitable" and "nonsuitable".

Criterion No. 1 - Evaluation of Wilderness Values

Consider the extent to which each of the following components contributes to the overall value of an area for wilderness purposes.

1) Mandatory Wilderness Characteristics: The quality of the area's wilderness characteristics of size, naturalness, and outstanding opportunities for solitude or primitive recreation.

2) Special Features: The presence or absence, and the quality of the optional wilderness characteristics of ecological, geological, or other features of scientific, educational, scenic, or historical value.

3) Multiple Resource Benefits: The benefits to other multiple resource values and uses which only wilderness designation would ensure.

4) Diversity in The National Wilderness Preservation System (NWPS): The extent to which wilderness designation of the area under study would contribute to expanding the diversity of the NWPS from the standpoint of each of the factors listed below:
    (a) Expanding the diversity of natural systems and features, as represented by ecosystems and landforms.
    (b) Assessing the opportunities for solitude or primitive recreation within a days driving time (five hours) of major population centers.
    (c) Balancing the geographic distribution of wilderness.

The analysis should consider, in separate categories, federal and state lands designated as wilderness, areas oficially recommended for wilderness, and other federal and state lands under wilderness study (the state lands referred to here are those involved in state government's wilderness programs).

Criterion No. 2 - Manageability

The area must be capable of being effectively managed to preserve its wilderness character.

Quality Standard 1: Energy and Mineral Resource Values

Recommendations as to an area's suitability or nonsuitability for wilderness designation will reflect a thorough consideration of any identified or potential energy and mineral resource values.

Quality Standard 2: Impacts on Other Resources

Consider the extent to which other resource values or uses of the area would be foregone or affected as a result of wilderness designation.

Quality Standard 3: Impact of Nondesignation on Wilderness Values

Consider the alternative use of land under study if the area is not designated as wilderness, and the extent to which wilderness values of the area would be foregone or affected as a result of this use.

Quality Standard 4 - Public Comment

In determining whether an area is suitable or nonsuitable for wilderness designation, the BLM wilderness study process will consider comments received from interested and affected publics at all levels; local, state, regional, and national. Wilderness recommendations will not be based exclusively on a vote-counting majority rule system. The Bureau will develop its recommendations by considering public comment in conjunction with its analysis of a wilderness study area's multiple resource, social, and economic values and uses.

Quality Standard 5 - Local Social and Economic Effects

In determining whether an area is suitable or nonsuitable for wilderness designation, BLM will give special attention to adverse or favorable social and economic effects, as identified through the wilderness study process, which designation would have on local areas.

Quality Standard 6 - Consistency with Other Plans

In determining whether an area is suitable or nonsuitable for wilderness designation, BLM recommendation is consistent with oficially approved and adopted resource-related plans of other federal agencies, state and local governments, and Indian tribes (and the policies and programs contained in such plans), as required by FLPMA and the BLM planning regulations.

ECONOMICS

Churchill County Input-Output Model

The input-output (I-O) model of Churchill County developed for this analysis was constructed with the IMPLAN computer algorithm. The algorithm uses a Supply-Demand Pool technique for constructing regional interindustry models from secondary data. While survey based models are generally considered more accurate, the IMPLAN system was selected for this analysis because model construction is simple, rapid, and inexpensive.

Economic impacts are described by structural parameters such as direct, indirect, and induced changes in gross outputs, earnings, and employment. Induced effects are calculated using a modified "Type III" multiplier procedure (Miernyk, 1965), which uses an iterative technique to include the impacts of induced consumptive spending (Alward and Palmer, undated).

Linear Programming Models

Linear Programming (L-P) Models were used to facilitate the ranch economic analysis in this RMP/EIS. These models maximize returns above variable cash costs, subject to a series of livestock production functions and resource constraints. Basic concerns in developing the models were time and budget constraints in both the model construction and model utilization processes. Therefore, while accuracy is generally considered a function of the number of variables, the number of variables in the models was minimized.

The L-P models account for the amount of feed available from each source during each season of the year. They also reflect the fact that livestock nutritional requirements vary by season. This requires the use of conversion factors since BLM pricing policies are based on a constant year-round livestock forage consumption rate. The conversion factors used are from Nielson's "Economics of Range Improvements", 1977.

The L-P models were constructed with Honeywell's Mathematical Programming System. This system is based on finding optimal solutions to problems with large sets of simultaneous linear equations. It is readily adaptable to ranch economic impact analysis.

Several non-BLM studies of the economic impact of changes in public land grazing in Nevada have recently been completed. They all included LP analysis. Garlon and Kim's study (1981) indicated that the change in income per AUM of public land grazing in Elko County was about $10. Lucier's study (1980) indicated that the change in income ranged from $6 to $14 per AUM in Elko County. Torell et al's study (1980) indicated that the change in income ranged from $6 to $15 per AUM in Humboldt County. Although the analytical framework of these studies varied considerably, their results were fairly-consistent with each other and with the LP analysis for this EIS which indicates a range of $5 to $10 per AUM. It should be noted that these figures represent marginal income per AUM and do not correspond to the average income figures per cow in Tables 1 and 2 of this appendix.

Estimates of changes in ranch income and employment were obtained by varying in the LP models the amount and season of public land grazing use levels estimated in the livestock grazing sections. Livestock production costs were also varied based on the number of AUMs in areas proposed for wilderness. These costs were estimated at seven cents per AUM (USDI, BLM, Oregon State Office, 1981).

Capital Value of Grazing Allotments

Estimates of changes in the capital value of grazing allotments were made by applying the estimated percentage change in available production to current active preference. This was multiplied by the estimated value of $40 per AUM. The change in costs per AUM in wilderness areas was capitalized at 12 percent for 50 years to estimate the change in value per AUM in wilderness areas.

Ranch Budgets

In October and November, 1982 each of the 26 livestock operators were contacted as part of a ranch budget survey (OMB #1004-0123). Fifteen ranchers responded to the survey. "Typical" ranch budgets, production, and resource data as well as linear programming models were developed from the survey data for two categories of ranches: (1) Yearlong - those ranches that use public lands for most or all of the year (ten ranches), and (2) Winter - those ranches that use public lands primarily during the winter (16 ranches). The winter operation category includes two sheep ranches for which separate budgets were not developed because they account for only three percent of the total livestock use. The categories were based on periods-of-use rather than number of head to provide a more accurate impact analysis (Torell et al, 1980).

Preliminary budgets developed from the survey data were mailed to all of the livestock operators in the RMP area as well as the Cooperative Extension Service in Fallon in April, 1983 with a request for comments on their accuracy. The final budgets, production, and resource data in the following tables are the result of those comments.

Recreation Economics

Analysis of the economic impacts from changes in recreation use were based on applying expenditure data from the 1980 National Survey of Fishing, Hunting and Wildlife Associated Recreation (U.S. Fish and Wildlife Service, 1982). While much of the recreation use in the RMP area is not wildlife related it was assumed that the expenditures would be similar to non-consumptive wildlife related recreation. Expenditures were converted to income by applying an estimate of expenditures/trade margin from U.S. Water Resources Council, 1977. This was converted to direct income by applying the output/value added ratios from the Churchill County I-O model. Finally direct, indirect, and induced income was estimated by applying the "Type 3" multiplier from the I-O model to the estimate of direct income.

Tax Base

Estimates of the assessed value of disposal lands were obtained from local realtors and data from Nevada Department of Taxation (NDT, 1983a). Local tax rates (NDT, 1983b) were applied to these estimates to obtain project revenues. Estimates of changes in Payments in Lieu of Taxes (PILT) were based on the PILT formula outlined in Public Law 94-565 (BLM, 1983).

Table 1

CATTLE RANCH BUDGET
Lahontan Area 1981
Winter Operation

Item

Sales	Number	Weight	Price	Total	Per Cow
Calves	214	630	.597/lb.	$ 80,488	228.66
Culls	34	970	.398/lb.	13,126	37.29
Hay	143 Tons	N/A	70/ton	10,010	28.44
Total Sales				103,624	294.39
Production Costs					
Variable Costs					
Lahontan BLM Grazing Fees				2,584	7.34
Other Federal Grazing Fees				2,186	6.21
Private Grazing Lease				1,040	2.95
Hay Production				27,880	79.20
Salt and Supplements				743	2.11
Veterinary and Medicine				905	2.57
Trucking and Marketing				2,010	5.71
Fuel and Lubricants 1/				6,304	17.91
Repairs and Maintenance 1/				4,981	14.15
Interest on Operating Capital 1/				3,467	9.85
Hired Labor				11,516	32.72
Livestock Depreciation				3,425	9.73
Total Variable Costs				67,041	190.46
Fixed Costs 2/					
Overhead				1,203	3.42
Equipment Depreciation				5,843	16.60
Utilities				1,985	5.64
Insurance				3,407	9.68
Interest on Real Estate Loan 3/				16,020	45.51
Total Fixed Costs				28,458	80.85
Total Costs				95,499	271.30
Net Income 4/				8,126	23.09

1/ These are livestock related costs only. Hay related costs are included in Hay Production.

2/ Property taxes were included under Hay Production because they were not separated from water assessments.

3/ This cost was extremely variable. It ranged from $0 to $32,000. Therefore it should be used with caution.

4/ This represents net income in an accounting sense, or receipts minus cash costs and depreciation.

Table 2

CATTLE RANCH BUDGET
Lahontan Area 1981
Yearlong Operation

Item

Sales	Number	Weight	Price	Total	Per Cow
Calves	353	605	$.597/lb.	$127,498	226.86
Culls	56	900	.398/lb.	20,059	35.69
Hay	73/Tons	N/A	70/ton	3,110	9.09
Total Sales				152,667	271.65
Production Costs					
Variable Costs					
Lahontan BLM Grazing Fees				10,353	18.42
Other Federal Grazing Fees				3,118	5.55
Private Grazing Lease				7,621	13.56
Hay Production				29,069	51.72
Salt and Supplements				6,013	10.70
Veterinary and Medicine				3,490	6.21
Trucking and Marketing				815	1.45
Fuel and Lubricants 1/				6,373	11.34
Repairs and Maintenance 1/				7,744	13.78
Interest on Operating Capital 1/				4,170	7.42
Hired Labor				15,740	28.01
Livestock Depreciation				5,468	9.73
Total Variable Costs				99,974	177.89
Fixed Costs 2/					
Overhead				1,068	1.90
Equipment Depreciation				9,329	16.60
Utilities				2,164	3.85
Insurance				3,411	6.07
Interest on Real Estate Loan 3/				20,626	36.70
Total Fixed Costs				36,598	65.12
Total Costs				136,572	243.01
Net Income 4/				16,095	28.64

1/ These are livestock related only. Hay related expenses are included under Hay Production.

2/ Property taxes are included under Hay Production because they were not separated from water assessments.

3/ This cost was extremely variable. It ranged from $0 to $65,000. Therefore it should be used with caution.

4/ This represents net income in an accounting sense, or receipts minus cash costs and depreciation.

Table 3

LAHONTAN AREA
RANCH LIVESTOCK AND RESOURCE DATA
1981
Winter Operation

Livestock Production

Item	Unit	Amount
Cows	Head	352
Calf Crop	Percent	73
Death Loss	Percent	3
Replacement Rate	Percent [1]	14
Cows per Bull	Head	18

Sales

Calf Sales Months: March-April
Cull Sales Months: October-November

Resources

Item	Unit	Amount	Period Used
Lahontan Area BLM	AUMs	1,213	November-April
Other Federal Grazing	AUMs	930	April-September
Private Grazing Lease	AUMs	208	June-October
Owned Range	Acres	431	Yearlong
Owned Pasture	Acres	386	April-November
Owned Aftermath	Acres	167	October-January
Hay Produced	Tons	680	October-April

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[1] Percent of total calves

Table 4

LAHONTAN AREA
RANCH LIVESTOCK AND RESOURCE DATA
1981
Yearlong Operation

Livestock Production

Item	Unit	Amount
Cows	Head	562
Calf Crop	Percent	75
Death Loss	Percent	3
Replacement Rate	Percent [1/]	14
Cows per Bull	Head	22

Sales

Calf Sales Months: April-May
Cull Sales Months: September-October

Resources

Item	Unit	Amount	Period Used
Lahontan Area BLM	AUMs	4,482	Yearlong
Other Federal Grazing	AUMs	1,327	July-November
Private Grazing Lease	AUMs	1,060	Yearlong
Owned Range	Acres	1,067	Yearlong
Owned Pasture	Acres	168	June-December
Owned Aftermath	Acres	171	October-January
Hay Produced	Tons	709	December-May

[1/] Percent of total calves

APPENDIX L

LIVESTOCK

Methodology and Analysis

The impact analysis for livestock grazing is based on the potential changes in productivity outlined in the vegetation section. Impacts from land disposals were based on the assumption that each percentage decline in available vegetation production would result in a corresponding decline in livestock use. It should be noted that this is a worst case analysis because all of the lands proposed for disposal may not be disposed and even if disposed of they could be sold to the affected permittee. Given these qualifications, there appears to be a low probability that the worst case would occur.

Impacts from riparian protection were also based on a worst case analysis. As indicated in the implementation section, grazing systems which include measures for riparian protection would be fully evaluated before fencing would be used. However since it is unknown whether such systems would provide sufficient protection the worst case analysis assumes that fencing would be used. It was assumed that decreases in available livestock grazing capacity from fencing these areas would result in a corresponding decrease in livestock use. There appears to be a moderate probability of the worst case occurring, particularly around spring sources.

Impacts from increased vegetation production were based on the assumption that each percentage increase in production would result in a corresponding increase in livestock use.

For the Mid-Range and Production alternative it was assumed that 699 AUMs would be activated in the Dead Horse Well allotment due to short term improvements. This allotment, currently an unused emergency sheep reserve, would be split into three areas adjacent to the three bordering allotments through improvements consisting of fencing and water developments.

Projections of livestock use (and preference) were limited by the estimated 55 percent proper utilization level except for the initial use level in the Commodity Production alternative which was set at the current preference or three-year average licensed use, whichever was greater on an allotment basis. This was used for analytical purposes only.

No changes in livestock grazing use were projected as a result of the 2,000 acre burn proposed in the Mountain Well allotment under the Resource Protection alternative. Any increase in production from this proposal would be utilized by bighorn sheep in the Job Peak HMP area.

Table 1
PROJECTED LAHONTAN RMP AREA LIVESTOCK GRAZING USE
RESOURCE PROTECTION ALTERNATIVE

			CURRENT AUMs		PROJECTED SHORT TERM (0-5 yrs.) NEW PREFERENCE LEVEL 1/		LONG TERM (6-20 yrs.) AUMs LOST TO RIPARIAN PROTECTION		LONG TERM % CHANGE IN REMAINING AUMs DUE TO VEG. CONDITION CHANGE			LONG TERM (6-20 yrs.)
MGMT. CAT.	ALLOTMENT	ACRES PUB. LAND	Preference	3-Year Average	+ AUMs	New Pref. AUMs	# AUMs	New Pref. AUMs	+ −	AUMs	%	NET AUMs
C	Adriance Valley	31,790	1,620	1,620	- 516	1,104			+	55	5	1,159
M	Bass Flat	46,789	1,000	1,500	- 150	1,350			+	54	4	1,404
M	Bell Flat	91,885	3,600	3,950	- 450	3,500			+	140	4	3,640
M	Boyer Ranch	127,194	2,034	1,813	- 505	1,308	- 30	1,278	+	102	8	1,380
M	Bucky O'Neill	39,054	1,500	1,500	- 150	1,350			N/C			1,350
M	Churchill Butte	9,843	937	937	N/C	937			N/C			937
I	Clan Alpine	296,791	10,080	7,472	-3037	4,435	-203	4,232	+	339	8	4,571
M	Cleaver Peak	41,229	1,250	1,250	N/C	1,250			N/C			1,250
M	Clifton Flat	7,589	360	360	N/C	360			N/C			360
I	Copper Kettle	74,555	2,333	2,331	- 732	1,599	- 8	1,591	+	64	4	1,655
I	Cow Canyon	125,484	2,200	1,822	-1539	283	- 41	242	N/C			242
M	Desert Mountain	22,417	840	840	- 56	784			+	16	2	800
C	Dead Horse Well	77,031	0	0	0	0			N/C			0
I	Dixie Valley	282,801	6,645	5,761	-2936	2,825	-139	2,686	+	215	8	2,901
M	Eastgate	306,411	13,048	7,702	-1361	6,341	-285	6,056	+	242	4	6,298
I	Edwards Creek	58,820	3,492	2,181	-1153	1,028	- 63	965	+	39	4	1,004
M	Fort Churchill	15,059	560	560	N/C	560			N/C			560
M	Frenchman Flat	67,126	1,750	1,679	N/C	1,679			N/C			1,679
I	Hole in the Wall	84,204	2,675	1,222	- 880	342			−	10	3	332
M	Horse Mountain	63,043	3,000	1,591	- 316	1,275			−	77	6	1,198
C	Horse Springs	15,224	1,700	945	- 274	671			+	34	5	705
M	La Beau Flat	139,428	3,930	3,199	- 288	2,911			N/C			2,911
M	Lahontan	52,910	1,155	947	- 252	695			N/C			695
M	Mtn. Well-La Plata	137,685	8,700	6,860	-2028	4,832	- 25	4,807	+	192	4	4,999
M	Phillips Well	43,276	1,200	1,250	- 138	1,112			+	22	2	1,134
M	Rock Springs	28,394	535	535	- 49	486			N/C			486
M	Salt Wells	58,611	1,626	1,589	- 110	1,479			N/C			1,479
C	Stockton Flat	9,582	275	26	N/C	26			N/C			26
C	Truckee-Virginia	21,369	1,005	907	N/C	907			N/C			907
M	White Cloud	79,663	1,884	1,890		1,267	- 10	1,257	+	63	5	1,320
		2,455,257	80,934	64,239		46,696	-804		+	1,490		47,382

1/ Reductions in AUMs due to increases in wild horse numbers, wildlife reasonable numbers, decrease in livestock AUMs for three months off range in Spring (April-June), and land disposal in Eastgate allotment (588 ac = 43 AUMs).

Note: These are projections only, actual adjustments would be based on procedures outlined in Chapter Two.

Table 2
PROJECTED LAHONTAN RMP AREA LIVESTOCK GRAZING USE
MID-RANGE ALTERNATIVE

MGMT. CAT.	ALLOTMENT	ACRES PUB. LAND	CURRENT AUMs		SHORT-TERM AUMs REMAINING FOLLOWING LAND DISPOSAL		LONG TERM (0-5 yrs.) AUMs LOST TO PROPER UTILIZATION RESTRICTION (55%)		LONG TERM (0-5 yrs.) AUMs LOST TO RIPARIAN PROTECTION			LONG TERM % CHANGE IN REMAINING AUMs DUE TO VEG. COND. CHANGE		LONG TERM NET AUMs REMAINING		TOTAL CHANGE IN 3-YEAR AVERAGE	
			Preference	3-Year Average	Preference	3-Year Average	AUMs Lost	Adjusted Preference	AUMs	Pref.	3-Year Average	AUMs	%	Pref.	3-Year Average	+ % -	AUMs
C	Adriance Valley	31,790	1,620	1,620	1,604	1,604								1,604	1,604	- 1	16
M	Bass Flat	46,789	1,000	1,500								60	+ 4	1,040	1,560	+ 4	60
M	Bell Flat	91,885	3,600	3,950	3,564	3,911								3,564	3,911	- 1	39
M	Boyer Ranch	127,194	2,034	1,813	1,831	1,632			- 8	1,823	1,624			1,823	1,624	-11	189
M	Bucky O'Neill	39,054	1,500	1,500										1,500	1,500		N/C
M	Churchill Butte	9,843	937	937	928	928								928	928	- 1	9
I	Clan Alpine	296,791	10,080	7,472	9,677	7,173			-125	9,552	7,048	352	+ 5	10,030	7,400	- 1	72
M	Cleaver Peak	41,229	1,250	1,250										1,250	1,250		N/C
M	Clifton Flat	7,589	360	360										360	360		N/C
I	Copper Kettle	74,555	2,333	2,331	2,076	2,075			- 6	2,070	2,069	83	+ 4	2,153	2,152	- 8	179
I	Cow Canyon	125,484	2,200	1,822	2,156	1,786			- 5	2,151	1,781	125	+ 7	2,301	1,906	+ 4	84
M	Desert Mountain	22,417	840	840								17	+ 2	857	857	+ 2	17
C	Dead Horse Well	77,031	0	0										699	699	+100	734
I	Dixie Valley	282,801	6,645	5,761	5,715	4,954			- 87	5,628	4,867	487	+10	6,191	5,354	- 7	407
M	Eastgate	306,411	13,048	7,702	12,526	7,394	-3,677	8,842	-129	8,720	7,265			8,720	7,265	- 6	437
I	Edwards Creek	58,820	3,492	2,181					- 53	3,439	2,128	85	+ 4	3,577	2,213	+ 1	32
M	Fort Churchill	15,059	560	560					- 20	540	540			540	540	- 4	20
M	Frenchman Flat	67,126	1,750	1,679										1,750	1,679		N/C
I	Hole in the Wall	84,204	2,675	1,222								73	+ 6	2,836	1,295	+ 6	73
M	Horse Mountain	63,043	3,000	1,591										3,000	1,591		N/C
C	Horse Springs	15,224	1,700	945	1,343	747	- 271	1,072						1,072	747	-21	198
M	La Beau Flat	139,428	3,930	3,199										3,930	3,199		N/C
M	Lahontan	52,910	1,155	947	959	786						31	+ 4	997	817	-14	130
M	Mtn. Well-La Plata	137,685	8,700	6,860					- 8	8,692	6,852			8,692	6,852	<- 1	8
M	Phillips Well	43,276	1,200	1,250								25	+ 2	1,224	1,275	+ 2	25
M	Rock Springs	28,394	535	535										535	535		N/C
M	Salt Wells	58,611	1,626	1,589										1,626	1,589		N/C
C	Stockton Flat	9,582	275	26	220	21	- 69	151						151	21	-19	5
C	Truckee-Virginia	21,369	1,005	907	0	0								0	0	-100	907
M	White Cloud	79,663	1,884	1,890					- 8	1,876	1,882			1,876	1,882	<- 1	8
		2,455,257	80,934	64,239			-4,017		-449			1,338		74,826	62,605		

Note: These are projections only, actual adjustments would be based on procedures outlined in Chapter Two.

Table 3
PROJECTED LAHONTAN RMP AREA LIVESTOCK GRAZING USE
COMMODITY PRODUCTION ALTERNATIVE

			CURRENT AUMs		1/ INITIAL	SHORT TERM (0-5 yrs.) AUMs LOST TO PROPER UTILIZATION RESTRICTION (55%)		SHORT TERM (0-5 yrs.) AUMs REMAINING FOLLOWING LAND DISPOSAL		SHORT TERM TOTAL	LONG TERM (6-20 yrs.) AUMs LOST TO RIPARIAN PROTECTION		LONG TERM % CHANGE IN REMAINING AUMs DUE TO VEG. CONDITION CHANGE		LONG TERM TOTAL
MGMT. CAT.	ALLOTMENT	ACRES PUB. LAND	Preference	3-Year Average	AUM LEVEL	AUMs Lost	Adjusted AUM Level	% AUMs Lost	Adjusted AUM Level	AVAILABLE AUMs	AUMs Lost	Adjusted AUM Level	+ % -	Adjusted AUMs	AVAILABLE AUMs
C	Adriance Valley	31,790	1,620	1,620	1,620			1	1,604	1,604					1,604
M	Bass Flat	46,789	1,000	1,500	1,500					1,500			+ 4	1,560	1,560
M	Bell Flat	91,885	3,600	3,950	3,950			1	3,911	3,911			+ 3	4,028	4,028
M	Boyer Ranch	127,194	2,034	1,813	2,034			10	1,831	1,831	-2	1,829			1,829
M	Bucky O'Neill	39,054	1,500	1,500	1,500					1,500					1,500
M	Churchill Butte	9,843	937	937	937			1	928	928					928
I	Clan Alpine	296,791	10,080	7,472	10,080			4	9,677	9,677	-4	9,673	+14	11,027	11,027
M	Cleaver Peak	41,229	1,250	1,250	1,250					1,250					1,250
M	Clifton Flat	7,589	360	360	360					360					360
I	Copper Kettle	74,555	2,333	2,331	2,333			11	2,076	2,076	-2	2,074	+ 4	2,157	2,157
I	Cow Canyon	125,484	2,200	1,822	2,200			2	2,156	2,156			+ 7	2,307	2,307
M	Desert Mountain	22,417	840	840	840					840			+ 2	857	857
C	Dead Horse Well	77,031	0	0	0					699					699
I	Dixie Valley	282,801	6,645	5,761	6,645			14	5,715	5,715	-44	5,671	+11	6,295	6,295
M	Eastgate	306,411	13,048	7,702	13,048	-3,829	9,219	4	8,850	8,850	-75	8,775	+ 4	9,126	9,126
I	Edwards Creek	58,820	3,492	2,181	3,492					3,492	-57	3,435	+ 4	3,572	3,572
M	Fort Churchill	15,059	560	560	560					560					560
M	Frenchman Flat	67,126	1,750	1,679	1,750					1,750					1,750
I	Hole in the Wall	84,204	2,675	1,222	2,675					2,675			+ 6	2,836	2,836
M	Horse Mountain	63,043	3,000	1,591	3,000					3,000			- 6	2,820	2,820
C	Horse Springs	15,224	1,700	945	1,700	-124	1,576	27	1,150	1,150			+ 5	1,208	1,208
M	La Beau Flat	139,428	3,930	3,199	3,930					3,930					3,930
M	Lahontan	52,910	1,155	947	1,155			17	959	959			+ 4	997	997
M	Mtn. Well-La Plata	137,685	8,700	6,860	8,700					8,700	-4	8,696	+ 4	9,044	9,044
M	Phillips Well	43,276	1,200	1,250	1,250					1,250			+ 2	1,275	1,275
M	Rock Springs	28,394	535	535	535					535					535
M	Salt Wells	58,611	1,626	1,589	1,626					1,626					1,626
C	Stockton Flat	9,582	275	26	275	-93	182	20	146	146			- 4	140	140
C	Truckee-Virginia	21,369	1,005	907	1,005			100	0	0					0
M	White Cloud	79,663	1,884	1,890	1,890					1,890	-2	1,888			1,888
		2,455,257	80,934	64,239	81,840	-4,046				74,560	-190				77,708

1/ Initial AUM level is either preference or three-year average, whichever is greater.

Note: These are projections only, actual adjustments would be based on procedures outlined in Chapter Two.

GLOSSARY

ALLOTMENT: An area designated for the use of a prescribed number and kind of livestock.

ALLOTMENT MANAGEMENT PLAN (AMP): A documented program which applies to livestock operations on the public lands and is prepared in consultation with the permittee(s) or lessee(s) involved.

ALLUVIAL FAN: A fan-shaped deposit of stream wash materials made where the stream runs out onto a level plain.

ANIMAL UNIT MONTH (AUM): The amount of forage necessary for the sustenance of one cow or its equivalent for one month.

AREA OF CRITICAL ENVIRONMENTAL CONCERN (ACEC): An area where special management attention is required to protect and prevent irreparable damage to important historic, cultural, or scenic values, fish and wildlife resources, or other natural systems or processes, or to protect life and safety from natural hazards.

CHERRYSTEM: A boundary configuration in which the boundary of a wilderness study area or proposed wilderness is drawn around a dead-end road or other linear feature so as to exclude that road or feature from the wilderness study area or proposed wilderness.

CHERRYSTEM ROAD: A dead-end road excluded from wilderness study by means of a cherrystem.

CLIMAX: The highest and most stable stage of ecological development of a biotic community capable of perpetuation under the prevailing climatic and soil conditions, when undisturbed by outside forces.

COMPETITION: An interaction in which two or more species require a scarce resource in an area, and where the physical condition or population level of at least one of those species is negatively affected by the presence of other species.

CRITICAL GROWTH PERIOD: The period in a plant's growth cycle when food reserves are lowest and grazing is most harmful; for example, in grass species this period begins with the boot (prebud stage) and closes with complete maturation of the fruit.

EARLY SERAL CONDITION: Synonymous with poor ecological condition.

ECOLOGICAL CONDITION: The present state of vegetation of a range site in relation to the climax (natural potential) plant community for that site. It is an expression of the relative degree to which the kinds, proportions, and amounts of plants in a plant community resemble that of the climax plant community for the site. It is basically an ecological rating of the plant community.

ECOSYSTEM: Collectively, all populations in a community, plus the associated environmental factors.

FORAGE CONDITION: The present state of health of a range based upon the relative abundance of preferred and desireable plant species present and the total annual herbage it is capable of producing for different classes of livestock and/or wild horses under multiple-use management. Contrasting forage condition with ecological condition: forage condition compares the present abundance and mix of palatable forage plant species available for livestock to the best production and combination of forage species a range can produce for livestock and/or wild horse grazing. Ecological condition is a comparison of the present plant species composition and production to the climax plant community, with no regard to the individual plant species palatability.

GRAZING PREFERENCE: The total number of animal unit months (AUMs) of livestock use apportioned and attached to base property owned or controlled by a permittee or lessee for grazing on public lands.

> ACTIVE PREFERENCE: The total number of AUMs currently authorized to be licensed. (Total preference minus suspended use equals active preference.)
>
> LICENSED USE:(Scheduled Active Use) Total number of AUMS currently licensed.
>
> REGULAR NON-USE: Authorization to refrain, temporarily, from placing livestock on public land without loss of grazing preference.

SUSPENDED PREFERENCE: Non-use required by BLM due to inadequate vegetation to meet grazing preference.

GRAZING SYSTEM: A systematic sequence of grazing treatments applied to an allotment to reach identified multiple-use goals or objectives by improving the quality and quantity of the vegetation.

HERD MANAGEMENT AREA PLAN (HMAP): An activity plan which addresses the management of wild horses or burros and their habitat on one or more herd management areas.

HYDROLOGIC BUDGET: Accounting of all inflow to, outflow from, and change in storage within a hydrologic area.

LATE SERAL CONDITION: Synonymous with good ecological condition.

LITHIC SCATTERS: A surface distribution of stone flakes and tools, indicative of aboriginal stone knapping activities.

MAJOR LAND RESOURCE AREA: Large geographic area of land characterized by particular patterns of soil, climate, climax plant associations, water resources, and land use.

MESOZOIC: An era of geologic time following the Paleozoic era and succeeded by the Cenozoic era.

MID SERAL CONDITION: Synonymous with fair ecological condition.

MINERAL POTENTIAL:

High Mineral Potential: The geologic environment, the inferred geologic processes, the reported mineral occurrences, and the known mines or deposits indicate high favorability for accumulation of mineral resources.

Moderate Mineral Potential: The geologic environment, the inferred geologic processes, and the reported mineral occurrences indicate moderate favorability for accumulation of mineral resources.

Low Mineral Potential: The geologic environment and the inferred geologic processes indicate low favorability for accumulation of mineral resources.

NATURAL PLANT COMMUNITY: The total plant community that is best adapted to a particular site. The community which is in dynamic-equilibrium with the environment and expresses the potential of the site.

NATURALNESS: Refers to an area which "generally appears to have been affected primarily by the forces of nature, with the imprint of man's work substantially unnoticeable." (from Section 2(c), Wilderness Act).

OFF-ROAD VEHICLE (ORV): Any motorized vehicle capable of, or designed for travel on or immediately over land, water, or other natural terrain.

OUTSTANDING (Wilderness): 1. standing out among others of its kind; conspicuous; prominent. 2. superior to other of its kind; distinguished; excellent.

POST-FLPMA: The period of time after the enactment of the Federal Land Policy and Management Act (October 21, 1976).

PRE-FLPMA: On or before October 21, 1976.

PRELIMINARY WILDERNESS RECOMMENDATION: Refers to a wilderness recommendation at any stage prior to the time when the Secretary of the Interior reports his recommendation to the President. Until the Secretary acts, the recommendation is "preliminary" because it is subject to change during administrative review.

PRIMITIVE AND UNCONFINED RECREATION: Nonmotorized and nondeveloped types of outdoor recreational activities.

RECREATION OPPORTUNITY SPECTRUM (ROS): A land classification system which identifies a particular area's capability to produce certain types of outdoor recreation opportunities based on a spectrum from primitive to urban.

RECREATION VISITOR DAY: A 12-hour period spent in recreation activities by one or more individuals in a public land area. The time may be spent, for example, by one individual for 12 hours or 3 individuals for 4 hours each. Visitor days rather than visitor hours are used in this document for convenience.

ROAD: A vehicle route which has been improved and maintained by mechanical means to ensure relatively regular and continuous use.

SEDIMENT YIELD: The total sediment outflow from a drainage basin in a specific period of time. It includes bed load as well as suspended load, and usually is expressed in terms of mass, or volume per unit of time.

SOLITUDE (Wilderness): 1. The state of being alone or remote from habitation; isolation. 2. A lonely, unfrequented, or secluded place.

STANDARD METROPOLITAN STATISTICAL AREA (SMSA): A population center which has a population of 100,000 or greater. An SMSA is a county which contains at least one city of 50,000 inhabitants or more plus as many adjacent counties as are metropolitan in character and are socially integrated with that central city or cities.

STUMPAGE VALUE: The value of cordwood in place or on the stump as opposed to final market value which is for split and delivered wood.

SUITABLE FOR PRESERVATION AS WILDERNESS: Refers to a recommendation that certain Federal lands satisfy the definition of wilderness in the Wilderness Act and have been found appropriate for designation as wilderness on the basis of an analysis of the existing and potential uses of the land.

SUPPLEMENTAL VALUES: Values that may be present in an area under consideration for wilderness, such as ecological, geological, or other features or scientific, educational, scenic, or historical value. They are not required for wilderness designation, but their presence will enhance an area's wilderness quality.

VALID EXISTING RIGHTS: Valid existing rights as of October 21, 1976 will be recognized. Examples of valid existing rights include: a valid mining claim, a mineral lease, or a right-of-way authorization. Valid existing rights are not absolute. The scope of a valid existing right depends upon any conditions, stipulations or limitations stated in the law or approval document that created the right.

VEGETATION CONDITION: Synonymous with the collective use of the terms forage condition and ecological condition.

WAY: A vehicle route which has not been improved and maintained by mechanical means to ensure relatively regular and continous use. A vehicle route established and maintained solely by the passage of motor vehicles.

WILD HORSE HERD AREA: The geographic area identified as having been used by a herd as its yearlong habitat in 1971.

WILD HORSE HERD USE AREA: The geographic area which a herd currently uses as its habitat.

WILDERNESS CHARACTERISTICS: Identified by Congress in the 1964 Wilderness Act: namely size, naturalness, outstanding opportunities for solitude or a primitive and unconfined type of recreation, and supplemental values such as geological, archaeological, historical, ecological, scenic, or other features. It is required that the area possess at least 5,000 acres or more of contiguous public land or be of a size to make practical its preservation and use in an unimpaired condition; be substantially natural or generally appear to have been affected primarily by the forces of nature, with the imprint of man being substantially unnoticeable; and have either outstanding opportunities for solitude or a primitive and unconfined type of recreation. Congress stated that a wilderness area may also have supplemental values, which include ecological, geological, or other features of scientific, educational, scenic, or historical value.

WILDERNESS MANAGEMENT POLICY: This policy document prescribes the general objectives, policies, and specific activity guidance applicable to all designated BLM wilderness areas. Specific management objectives, requirements, and decisions implementing administrative practices and visitor activities in individual wilderness areas are developed and described in the wilderness management plan for each unit.

WILDERNESS STUDY AREA (WSA): A roadless area which has been found to have wilderness characteristics.

WILDERNESS VALUES: The wilderness characteristics and multiple resource benefits of an area.

WILDERNESS STUDY CRITERIA: The criteria and quality standards developed in the Wilderness Study Policy to guide planning efforts in the wilderness EISs. Refer to Appendix H for a list of the criteria.

ACRONYMS

ACEC: Areas of Critical Environmental Concern

AMP: Allotment Management Plan

AUM: Animal Unit Month

B/C: Benefit/Cost

CFR: Code of Federal Regulations

FLPMA: Federal Land Policy and Management Act of 1976

GEM: Geology, Energy and Minerals Report

HMAP: Herd Management Area Plan

HMP: Habitat Management Plan

IO: Input-Output

IMP: Interim Management Plan

JDR: Job Documentation Report

LP: Linear Programming

NDOW: Nevada Department of Wildlife

NWPS: National Wilderness Preservation System

OMB: Office of Management and Budget

ORV: Off-Road Vehicle

RMP: Resource Management Plan

ROS: Recreation Opportunity Spectrum

SCORP: State Comprehensive Outdoor Recreation Plan

SMSA: Standard Metropolitan Statistical Area

VRM: Visual Resource Management

WSA: Wilderness Study Area

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INDEX

Air Quality: 2-16, 3-1, 4-1

Allotment Management Plans (AMPs): 1-1, 2-2, 2-4, 2-6, 2-7, 2-9, 2-11, 2-13, 2-14, 2-16, 3-16, 3-17, 4-16, 4-28, 4-30, 4-41, 4-44

Animal Unit Months (AUMs): II, III, 2-2, 2-4, 2-6, 2-7, 2-9, 2-11, 2-12, 3-6, 3-16, 3-20, 3-27, 3-28, 4-6, 4-16, 4-30, 4-31, 4-41, 4-44

Aspen (See Riparian)

Bighorn Sheep (Big Game): 2-2, 2-4, 2-7, 2-9, 2-12, 3-6, 3-9, 3-12, 4-4, 4-6, 4-14, 4-16, 4-28, 4-30, 4-37, 4-42, 4-43

Checkerboard Lands: 1-2, 2-8, 2-11, 2-13, 3-24

Chukar: 3-9, 3-12, 3-13, 3-16, 4-4, 4-15, 4-29, 4-42

Condition (Ecological): III, 2-2, 2-6, 2-11, 3-3, 3-4, 3-5, 3-6, 4-2, 4-3, 4-12, 4-14, 4-15, 4-28, 4-41, 4-44, 4-55, 4-56

Coordinated Resource Management and Planning (CRMP): 2-13

Critical Growth Period (Season): 2-1, 2-2, 2-14, 3-5, 3-7, 3-8, 4-28

Cultural Resources: 2-16, 2-17, 3-1, 3-15, 3-16, 4-5, 4-16, 4-19, 4-30, 4-43, 4-51

Custodial Management (Category C): 2-4, 2-6, 2-10, 2-11, 2-12, 2-14, 2-15, 4-16, 4-39

Employment (Unemployment): 3-25, 3-26, 3-28, 3-29, 4-8, 4-21, 4-37, 4-47, 4-53

Erosion (also see Soils): 2-17, 3-1, 3-9, 3-12, 4-1, 4-10, 4-25, 4-38, 4-55

Federal Land Policy and Management Act (FLPMA): 1-1, 2-16, 2-17, 3-19

Fisheries (also see Riparian): 3-12, 4-5, 4-15, 4-29, 4-42, 4-43

Fuelwood Cutting: III, 3-18, 3-19, 3-29, 4-6, 4-9, 4-19, 4-20, 4-45, 4-52, 4-54

Geothermal: 2-8, 2-10, 2-12, 2-18, 3-18, 3-20, 3-24, 3-30, 4-6, 4-7, 4-8, 4-17, 4-18, 4-31, 4-32, 4-33, 4-36, 4-44, 4-46, 4-49, 4-52, 4-54

Herd Management Area Plans (HMAP): 2-4, 2-10, 2-15, 3-15

Hunting: 3-11, 3-13, 3-15, 3-16, 3-28, 3-30, 4-6, 4-16, 4-30, 4-34, 4-36

Income: III, 3-25, 3-26, 3-28, 3-29, 4-8, 4-21, 4-22, 4-35, 4-47, 4-53

Implementation: 1-2, 2-4, 2-7, 2-9, 2-12, 2-13, 2-14, 2-15, 2-16, 3-14, 3-15, 4-9, 4-16, 4-23, 428, 4-42, 4-49, 4-50, 4-56

Intensive Management (Category I): 2-4, 2-6, 2-7, 2-9, 2-10, 2-11, 2-12, 2-14, 2-15, 4-14, 4-16, 4-28, 4-39

Issues: I, II, 1-1, 1-2, 2-1

Land Disposal: I, 1-2, 1-3, 2-1, 2-2, 2-6, 2-8, 2-10, 2-11, 2-13, 2-15, 2-16, 2-17, 3-30, 4-8, 4-11, 4-15, 4-17, 4-18, 4-21, 4-24, 4-30, 4-34, 4-35, 4-36, 4-44, 4-47, 4-50, 4-52, 4-56

Licensed Use: 2-2, 2-6, 2-9, 2-11, 4-31

Livestock Grazing: I, II, III, 1-2, 2-1, 2-2, 2-4, 2-5, 2-7, 2-9, 2-10, 2-12, 2-13, 2-14, 2-15, 2-18, 3-1, 3-9, 3-27, 4-6, 4-16, 4-30, 4-44, 4-52, 4-55

Maintenance Management (Category M): 2-4, 2-6, 2-7, 2-9, 2-10, 2-11, 2-12, 2-14, 2-15, 4-16, 4-39

Manageability (Wilderness): 2-6, 2-7, 2-10, 3-21, 3-22, 3-23, 3-24, 4-20, 4-32, 4-33, 4-34, 4-45, 4-46, 4-47

Mineral Potential: 2-8, 2-10, 2-17, 3-18, 3-20, 3-22, 3-24, 4-7, 4-18, 4-31, 4-32, 4-44, 4-45, 4-54, 4-55

Mining: 2-10, 2-15, 3-18, 3-21, 3-22, 3-29, 3-30, 4-9, 4-17, 4-18, 4-19, 4-22, 4-31, 4-32, 4-33, 4-36, 4-44, 4-47, 4-48, 4-54

Monitoring: I, 1-1, 2-4, 2-6, 2-9, 2-11, 2-13, 2-15, 2-16, 4-36

Mule Deer (see Wildlife/Big Game)

National Environmental Policy Act (NEPA): 1-1, 2-16

No Livestock Grazing Alternative: 2-1

Nongame Birds (see Wildlife)

Nonsuitable: 2-2, 2-3, 2-8, 2-12, 4-7

Off-Road Vehicles (ORVs): 1-2, 2-10, 3-16, 3-22, 3-23, 3-30, 4-5, 4-7, 4-8, 4-16, 4-20, 4-33, 4-34, 4-43, 4-46, 4-47

Oil and Gas Leasing: 2-18, 3-24, 3-29, 4-7, 4-8, 4-17, 4-18, 4-31, 4-32, 4-36, 4-44, 4-49, 4-54

Periods-of-Use: 3-6, 4-28, 4-29

Planning Criteria: 1-3

Ranch Budgets: 3-29

Range Improvements/Facilities: II, 2-2, 2-3, 2-7, 2-9, 2-10, 2-11, 2-13, 2-17, 2-18, 3-21, 4-1, 4-13, 4-16, 4-26, 4-30, 4-31, 4-41, 4-44, 4-56

Reasonable Numbers: II, 2-4, 2-6, 2-7, 2-10, 2-11, 3-6, 4-14, 4-16

Recreation: III, 3-15, 3-21, 3-23, 3-24, 3-28, 4-5, 4-8, 4-9, 4-16, 4-22, 4-30, 4-32, 4-36, 4-43, 4-48, 4-51, 4-53, 4-54

Reintroductions: 2-7, 2-10, 4-14, 4-16, 4-19, 4-28, 4-30, 4-37, 4-43, 4-49

Riparian: 2-2, 2-4, 2-5, 2-8, 2-9, 2-11, 2-15, 2-17, 3-5, 3-23, 4-4, 4-10, 4-13, 4-14, 4-17, 4-19, 4-26, 4-29, 4-36, 4-41, 4-48, 4-55

Sage Grouse (see Wildlife)

Sediment (see Soils)

Seedings (Vegetation Treatments): 2-11, 2-15, 2-18, 2-23, 3-3, 4-13, 4-26, 4-28, 4-41, 4-44

Selective Management: 2-13

Soils: III, 3-1, 3-3, 4-1, 4-10, 4-25, 4-38, 4-51

Suitable: 1-3, 2-2, 2-7, 2-11, 2-12, 3-21, 4-21, 4-24, 4-34, 4-46

Threatened/Endangered (Plants & Animals): 2-17, 3-9, 3-10, 4-5

Trend (see Vegetation)

Utilization: 2-1, 2-4, 2-11, 2-15, 2-24, 2-27, 3-5, 3-6, 4-11, 4-16, 4-30, 4-39, 4-48

Vegetation: 2-1, 2-4, 2-11, 2-15, 2-24, 2-27, 3-2, 4-1, 4-2, 4-10, 4-25, 4-38, 4-40, 4-51
  Ecological Conditon and Trend: 2-24, 3-2, 3-3, 3-5, 3-6, 4-2, 4-3, 4-11, 4-12, 4-25, 4-26, 4-27, 4-38, 4-39, 4-40
  Productivity: 4-2, 4-6, 4-13, 4-15, 4-26, 4-39

Visitor Use (days): 4-5, 4-9, 4-16, 4-30, 4-43, 4-48, 4-51, 4-52

Visual Resources (VRM): 2-16, 3-15, 4-5, 4-15, 4-29, 4-42, 4-51, 4-55

Water (Quality and Quantity): 3-2, 3-3, 4-2, 4-10, 4-25, 4-38, 4-51, 4-55

Watershed (see Erosion)

Wild Horses: III, 1-2, 2-2, 2-4, 2-6, 2-8, 2-9, 2-11, 3-14, 3-15, 3-28, 4-5, 4-15, 4-28, 4-29, 4-42, 4-43, 4-49, 4-51, 4-55

Wilderness: I, II, III, 1-1, 1-2, 2-2, 2-6, 2-7, 2-11, 2-12, 2-15, 2-17, 2-18, 3-19, 3-20, 3-22, 3-23, 3-24, 3-28, 3-30, 4-7, 4-9, 4-16, 4-19, 4-32, 4-53, 4-55
  Study Areas: 1-1, 1-2, 2-1, 2-6, 2-12, 2-17, 3-19, 3-20, 3-22, 3-24, 4-7, 4-29, 4-34
  Designation: 1-1, 1-2, 2-7, 2-12, 2-15, 2-17, 3-19, 3-30, 4-15, 4-17, 4-19, 4-20, 4-23, 4-28, 4-31, 4-32, 4-34, 4-37, 4-42, 4-44, 4-47, 4-48, 4-51, 4-52

Wildlife: II, III, 1-2, 2-2, 2-4, 2-6, 2-9, 2-10, 2-11, 2-12, 2-14, 2-17, 3-11, 3-12, 3-14, 3-17, 3-28, 4-4, 4-14, 4-28, 4-29, 4-41, 4-42, 4-51

Woodland: 2-10, 3-18, 3-19, 4-6, 4-7, 4-13, 4-19, 4-45, 4-52

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